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THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. The Museum authorities are dependent upon private subscriptions and the dues from members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world.

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Annual Members.....	$ 10	Fellows.....	$ 500
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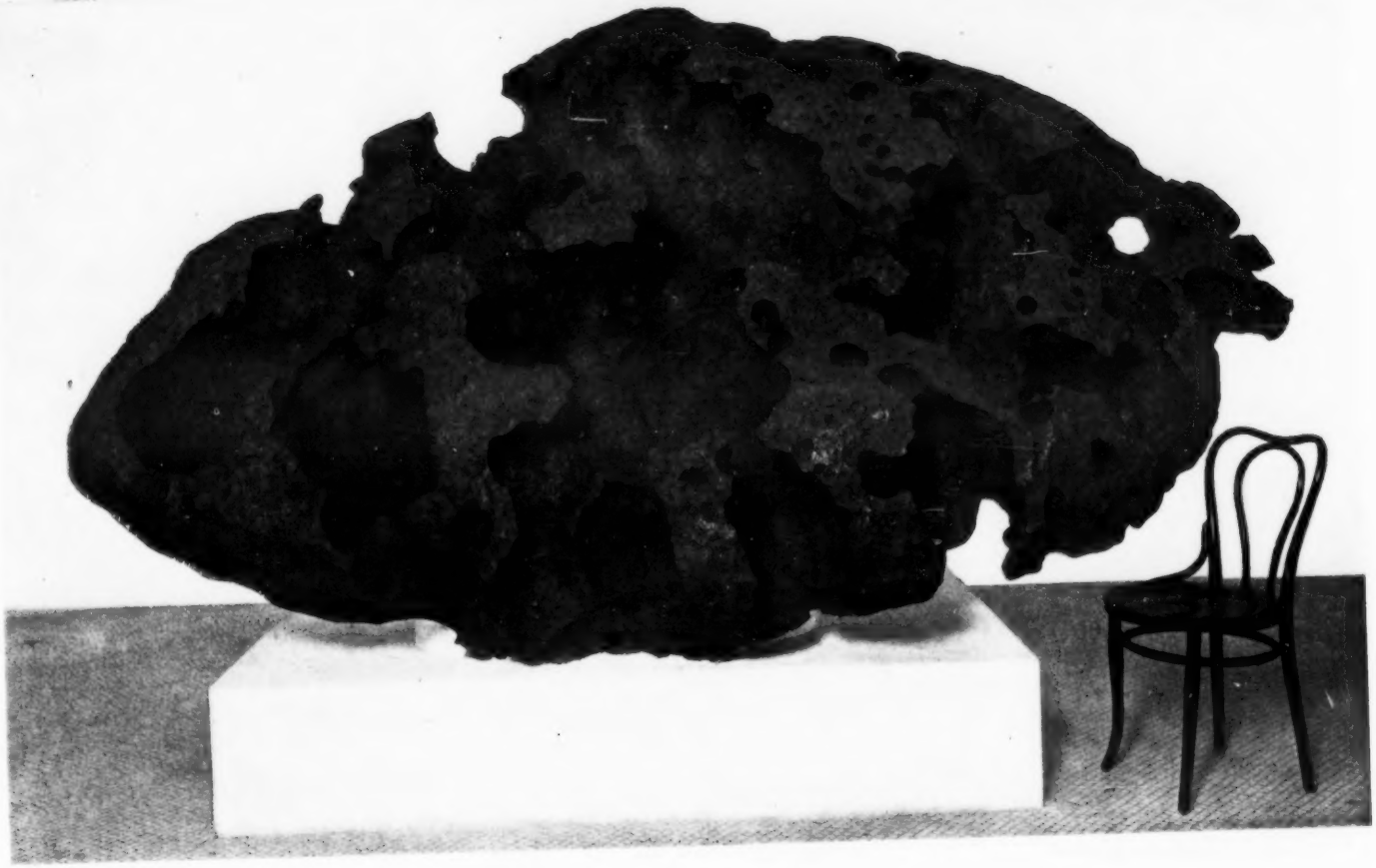
The Museum is open free to the public on Wednesdays, Thursdays, Fridays, Saturdays, and Sundays. Admittance is free to Members every day.



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THE WILLAMETTE METEORITE

Gift of Mrs. William E. Dodge

Length 10 feet, height 6 feet 6 inches, weight 15.6 tons

The American Museum Journal

VOL. VI. JULY, 1906. NO. 3

THE WILLAMETTE METEORITE.

THE Museum is particularly fortunate in having secured, as a gift from Mrs. William E. Dodge, the Willamette Meteorite, the largest meteorite which has been found in the United States and one of the three largest known. The great hollows and deep pits which characterize the surface of the mass combine with its enormous size to make this the most remarkable and interesting meteorite known.

Willamette is a siderite, or a mass composed of an alloy of iron and nickel, and its chief dimensions are: length, 10 feet; height, 6 feet 6 inches; thickness, 4 feet 3 inches; weight, as determined upon the railroad scales at Portland, Oregon, 31,107 pounds. About 100 pounds can safely be added to this weight for portions removed and carried away between its discovery and the time of its acquisition by the Museum, so that it is within bounds to say that the weight of the mass when found was at least 31,200 pounds, or about 15.6 tons.

All the great meteorites that are comparable with Willamette in size and weight are likewise siderites, or irons. They are Ahnighito, weighing 36.5 tons, Bacubirito, estimated at about 27.5 tons, the larger Chupaderos, 15.5 tons, San Gregorio, 11.1 tons, the smaller Chupaderos, 6.9 tons, and Bemdegó, 5.9 tons. Willamette's dimensions exceed those of the larger Chupaderos, and it therefore ranks as the third known meteorite in both size and weight.

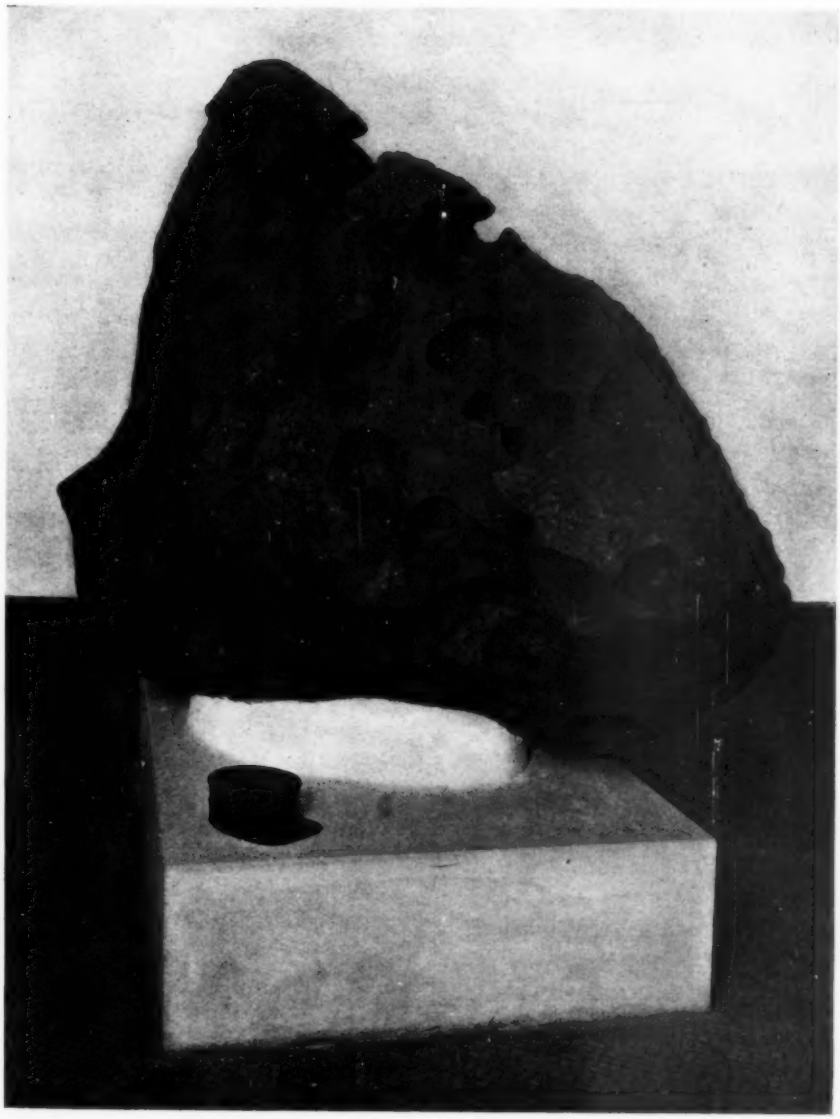
Ahnighito, or "The Tent," is the largest of the three iron meteorites brought to New York from Cape York, Greenland, by Commander Robert E. Peary, U.S.N., and with its associates, the "Woman" (6,000 pounds) and the "Dog" (1,100 pounds), is at this Museum. Bacubirito lies where it fell ages ago near the spot where now is located the little village in the State of Sinaloa, Mexico, which gives it its name. The two Chupaderos irons,

17 inches wide, and 10.5 inches deep, situated toward the east end of the meteorite in its present position. The form and arrangement of these basins indicate for them, according to Ward, an origin due to friction against the atmosphere and consequent melting and flowage of the surface of the iron. Willamette contains many nodules and cylindrical masses of troïlite (a sulphide of iron peculiar to meteorites), which is more easily fusible than the surrounding nickel-iron. These areas therefore may have formed the starting points for vortex action and consequent excavation by the condensed atmosphere during the flight of the meteorite through the air to the earth; but the original shape of the hollows must have been altered by subsequent oxidation.

It seems too much, however, to assert that all the depressions on the front of the meteorite are due to friction against the atmosphere. Those with basin-like lip and definite radial orientation may well be due primarily to this cause, though enlarged by subsequent terrestrial oxidation; but others with undercut edges and without radial orientation with reference to the apex of the cone are more probably the result of terrestrial oxidation, like the great cavities of the rear of the mass.

The channels which are observed near the edge of the meteorite are oriented like the basins just described and probably had the same origin. One of the channels is 21 inches long, 10 inches wide, and 7.5 inches deep. Perhaps they began around initial elongated masses of troïlite. Some of the channels, or furrows, connect with the great hollows of the rear side of the meteorite, piercing the mass.

The deep, pot-like pits of the rear portion of Willamette are the most striking superficial characteristic of the meteorite. Some are nearly circular in outline, while others are very elongate ellipses. The largest two are irregular ellipses about 42 inches long, 18 inches wide, and 17 and 18 inches deep. These great pits are compound, their bottoms showing that several small cavities have coalesced to form the large ones. All the cavities on this side of the meteorite increase in diameter below the orifice, *i. e.*, they are undercut. Some of the large cavities have smaller holes of the same character in their bottoms which were



THE WILLAMETTE METEORITE
Eastern half of front, or "Brustseite," showing fusion and erosion hollows and channels

discovered only when the thick rust and scale within them had been removed. The bottoms of the great cavities extend to essentially the same plane, about 18 inches below the general external surface.

Between the cavities there are hourglass-shaped pillars with nearly flat tops in which are many small flask-shaped holes three or more inches deep with orifices half an inch to one and one-half inches across. These are arranged in definite lines extending obliquely across the base of the meteorite in two directions nearly at right angles to each other. The great cavities are arranged in corresponding manner with their longer diameters parallel to one or the other system of lines of small holes. The character and arrangement of the cavities on the rear side of the meteorite indicate clearly that we have here a result of decomposition and erosion. Exactly analogous pits and cavities have been observed in beds of limestone and gypsum, where there can be no doubt of their erosional origin.

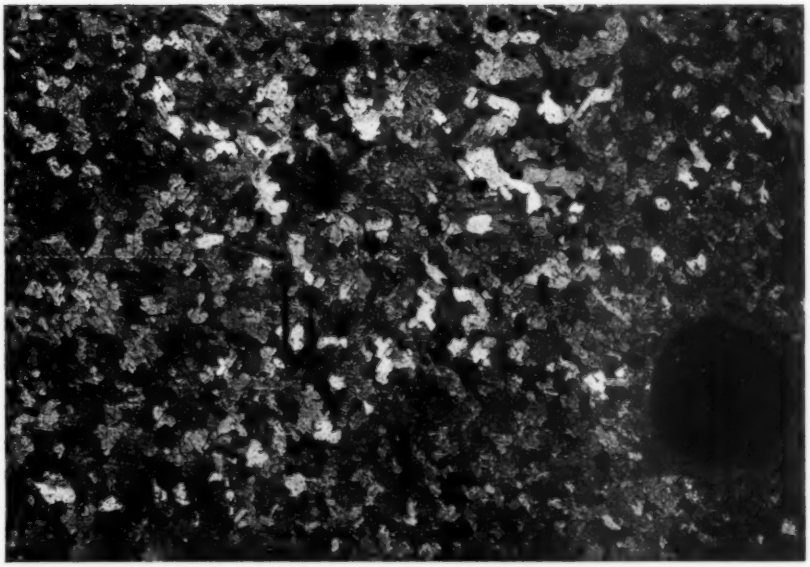
The climate of the region where the meteorite was found is extremely moist, without excessive rainfall, and there is comparatively little snow and ice, hence the conditions are exceptionally favorable to rapid oxidation and disintegration. The land is forest-covered, so that humus acids and carbonic acid are supplied in abundance to assist the destructive work of the water. The process seems to have been a simple one, the nodules and rods of troïlite which are scattered through the mass having formed centers of ready attack for the oxidizing agents. These areas of troïlite have been near enough together in certain directions to lead to the speedy coalescence of the cavities produced and the consequent formation of the great elongate basins. Troïlite nodules may be seen now in several of the cavities.

The cylindrical holes are somewhat irregular in their shape below the orifice. They are from $1\frac{1}{2}$ to 3 inches in diameter and of varying depth up to 6 or 8 inches. They show most clearly in the illustration on page 107 along the upper rim of the meteorite. These holes resemble the bore-holes of Canyon Diablo, Chupaderos and other iron meteorites, and are thought to have been begun by fusion or erosion of rod-like masses of troïlite.

The small, shallow depressions which Professor Ward has

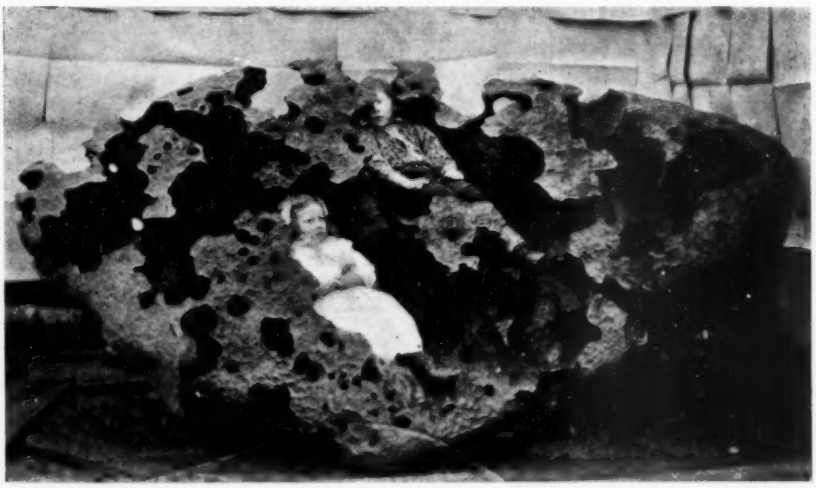
identified as "piezographs" are most conspicuous in a border zone eighteen or twenty inches wide which extends entirely around the rear of the mass. They are from one to three inches in diameter, with a depth approximately one-eighth as great. True piezographs, however, are surface features and are assigned to the heating and attrition due to the action of the greatly condensed air upon a meteorite and particularly upon the front, or brustseite, during its flight through the earth's atmosphere. Three considerations show that the small shallow depressions referred to upon Willamette are not piezographs: they are more abundant upon the rear than upon the front of the mass; they cover the inner surface of the great decomposition cavities in the rear, where they could not possibly have been caused by the friction of the atmosphere, as well as the exterior of the mass; the present exterior surface of the meteorite cannot be considered the original surface at the time of fall, and it may be far removed therefrom. Many pounds of rust and scale were left in the ground when Willamette was lifted out of its first earthly resting place, and it is not probable that the present surface bears any trace of the minor characteristics of the original surface. These slight depressions therefore are to be regarded as one of the features of the great iron which are due to unequal oxidation.

The internal character of the mass has been studied on an etched section in the Ward-Coonley Meteorite Collection on deposit in the Museum and on broken surfaces of the meteorite itself. The fracture shows the iron to be remarkable for its coarsely granular texture, the grains being bounded by almost definite planes suggesting crystals. The etched surface shows that Willamette is to be placed among the Broad Octahedrites (Og), No. 56 of Brezina's system of classification. In this class the lamellæ composing the iron are from 1.5 to 2 mm thick. The lamellar structure is somewhat obscured by plates, or flakes, of brighter and more lustrous iron. Most of these areas seem to have no definite outline, but the presence of Neumann lines on the larger ones indicates a crystalline character for them different from that of the main mass as indicated by the lamellæ (Ward). The pronounced lamellæ are the purer iron and are called kamacite, the definite lines bounding the kamacite plates are rich in



THE WILLAMETTE METEORITE

Polished and etched section showing Widmanstätten lines. The black spots are nodules and rods of Troïlite. Natural size. Ward-Coonley Collection.



THE WILLAMETTE METEORITE H. A. Ward, Photo.

In the forest near Oregon City, Oregon

nickel and are known as tænite, the metal filling in the spaces between the plates is known as plessite and is scanty in this meteorite. Troïlite shows abundantly in the section as well as in the surface of the main mass. Schreibersite, the brilliant meteoritic phosphide of iron and nickel, is not in evidence to the unaided eye.

Two analyses of Willamette have been made for Professor Ward and are here quoted:

J. M. Davison.		J. E. Whitfield.	
Iron	91.65%	Iron	91.46%
Nickel	7.88	Nickel	8.30
Cobalt	.21		
Phosphorus	.09		99.76
	99.83		

The specific gravity is 7.7.

EDMUND OTIS HOVEY.

THE EAST MAMMAL HALL.

THE East Mammal Hall (No. 207 of the Second Floor), leading out of the Hall of North American Mammals, has been opened to the public within a few weeks. The center of the room is occupied by a noble group representing five Olympic Elk beside a spring in the mountains. These are some of the latest productions of the Department of Taxidermy and are displayed without glass covering, for the purpose of avoiding the reflections due to great expanses of glass. The animals were collected in the Olympia Mountains of Washington. Other noteworthy mammal groups in this hall are those of the Musk Ox and the Caribou from the Stone Expeditions to Alaska and the Prong-horned Antelope. A small group consisting of a pair of the California Mule Deer from Lower California shows this graceful animal in pleasing attitudes. A single specimen of the Alaska Brown Bear, which was collected by Mr. Stone, illustrates one of the largest members of this family of beasts.

The southern side of the hall is devoted to reptiles and here will be found many single specimens and the groups representing

the Iguana and the Texas Rattle Snake. A new group of the series is one representing the Diamond Back Rattle Snake of Florida. The larger of the specimens in this group is 7 feet in length and has twelve rattles and two buttons. The Diamond Back and the Texas Rattler are the largest members of the Rattle Snake family and their strike is far more deadly than that of the northern varieties, probably on account of their size and weight and the great length of their fangs. The specimens mounted in this group were presented by the New York Zoölogical Society, and the accessories were collected by Mr. E. J. Brown.

The northern side of the hall is devoted to an educational synoptic exhibit illustrating the ethnology of the principal tribes of the Philippine Islands, a special feature of which is the series of photographs and window transparencies illustrating the habitations and the customs of the people. The sketch maps placed in each case enable the visitor to learn at a glance the location of the tribe which he is studying.

The tower room beyond the East Mammal Hall is devoted to reptiles and batrachians, particularly those of the vicinity of New York City, which are described in the two Guide Leaflets on these animals which have been issued by the Museum.

THE NEW BUILDING.

GROUND for the south wing of the west façade of the Museum building was broken May 21 and the excavation for the new building is now well advanced. The new wing is to be 157 feet long and 66 feet 2 inches wide, corresponding in style with the side wings of the southern façade. A one-story extension on the east side has been provided for the accommodation for certain special Japanese and Chinese exhibits. The basement will be devoted to the carpenter shop and other workshops of the Museum. Above the basement there will be four large exhibition halls. The fifth story will be devoted to laboratories and offices, while some much-needed storerooms will be made in the attic. There will be an underground passageway 12 feet wide and 12 feet high from the north end of the basement to

the engine room. A driveway will be made through the north end of the basement, which will be continued around the inner court to give direct connection with other parts of the building, and tracks will be laid from the surface car line on Columbus Avenue which will traverse this roadway and permit cars to discharge passengers at the entrance to the large auditorium, an improvement which is particularly desired for handling the crowds which attend the afternoon lectures to the public-school children.

JOSEPH H. BATTY.

ON May 27, Mr. J. H. Batty, the veteran collector, was instantly killed by the accidental discharge of his gun while on an expedition for this Museum at Pijijiapa, Chiapas, Mexico. Mr. Batty was a collector of wide experience in tropical America, and was especially successful in securing the larger Carnivores, so poorly represented in all museums. He was a man of great energy and determination, an enthusiastic collector and hunter, and fearless almost to a fault. He was under engagement with this Museum to continue his work across Guatemala and thence to the Cauca region of southwestern Colombia. His tragic death is thus a serious loss not only to this Museum but also to science. Mr. Batty was born at Springfield, Mass., about 60 years ago, but apparently retained his remarkable physical vigor unabated to the end. He fitted for college, but early abandoned his college course for, to him doubtless, more attractive pursuits, and he spent his life as a taxidermist and natural history collector. He was the author of a work on taxidermy and published one or two other books. Personally he was kindhearted and conscientious.

THE Bierstadt painting representing the landing of Columbus which was recently given to the Museum by Mrs. Albert Bierstadt has been mounted temporarily and placed on exhibition in the Hall of Southwestern Indians (No. 202 of the Second Floor).

AN EXPEDITION TO CULEBRA AND PORTO RICO.

DURING the winter Professor N. L. Britton, director of the New York Botanical Garden, organized an expedition to Culebra and Porto Rico and very kindly invited Professor W. M. Wheeler to accompany him for the purpose of studying the terrestrial invertebrate fauna of the islands. The party reached San Juan, Porto Rico, March 1, when Professor Britton, Doctor Marshall A. Howe and Professor Wheeler left the remainder of the party and were conveyed on the U. S. naval tug "Peoria" to Culebra, a dry, hilly island with an area of about 12 square miles, half way between the eastern end of Porto Rico and the Danish island St. Thomas. Capt. B. F. Walling, commandant of the naval station at Culebra, courteously provided quarters for the party on board the U. S. supply ship "Alliance," at anchor in the beautiful land-locked harbor, and furnished a temporary laboratory on the adjacent shore. Capt. Walling and Capt. T. F. Lynn, commanding the marines at Culebra, did everything in their power to assist the party in their exploration of the island. Launches and small boats were provided for work along the shore and horses for reaching the remoter parts of the island. Ten days were spent in a careful biological survey of the region, Professor Britton working on the land plants, Doctor Howe on the marine algæ and Professor Wheeler on the terrestrial invertebrates. A practically complete series of the myriapods, spiders, ants and other insects was secured for the American Museum.

On completing the work at Culebra the party returned to San Juan and on March 13 joined the other members of the party, Mrs. Britton, Miss Delia Marble and Mr. John F. Cowell, director of the Buffalo Botanical Garden, at Arecibo on the northern coast of the island. Carriages were obtained at Arecibo and the whole party traveled across the mountains on the fine new turnpike through scenery of exquisite beauty, in the direction of Ponce. The little mountain town of Utuado on this route was selected as an appropriate base for a week's collecting. Many specimens were taken in the cafetals and platanals of the ravines along the Rio Grande, a charming mountain stream

which flows by Utuado, and excursions were made to two neighboring mountains, Morales and Mandios, for the purpose of studying the fauna and flora in the dense primeval forests on their summits.

Pursuing its journey, the party arrived at Ponce on the southern coast of the island on March 21. For the purpose of collecting on the dry southern slope of the sierra an excursion was made to Tallaboa and Peñuelas. A number of *Cerion* shells were gathered near the former locality, which in its fauna and its drought conditions offers a striking resemblance to certain parts of the Bahamas. From Ponce the expedition returned to San Juan along the old Spanish military road, with a stop of parts of two days at Coamo Springs and frequent stops near Aibonito and Caguas. After reaching San Juan, where it was necessary to wait a few days for the steamer to New York, an excursion was made to the peculiar limestone cliffs about Vega Baja.

Although only four weeks could be devoted to the work, a large amount of botanical and zoölogical material was secured by the expedition. Professor Britton and his botanical staff collected 1456 numbers of land plants, averaging three or four specimens to a number, and 231 collection numbers of marine algæ, more than 6000 specimens altogether. Professor Wheeler secured an extensive collection of the ants of Culebra and Porto Rico, regions from which no ants have been described heretofore. This collection contains some 5000 specimens, representing about 60 species, subspecies and varieties. A new fungus-growing ant of the genus *Cyphomyomex* was discovered and the peculiar and hitherto unknown fungus-gardens of *Mycocepurus smithi* Forel were studied. A new wingless fly (*Pulicifphora borinquenensis* sp. nov.) was taken at Utuado, and a new arachnid belonging to the remarkable group of the Tartarides (*Schizomus brittoni* sp. nov.) was secured at Coamo Springs. The series of myriopods, spiders and termites also comprises several undescribed species.

NORTH AMERICAN BIRD GROUPS

MESSRS. Chapman, Figgins and Horsfal went to the Far West in the latter part of April to obtain animals and accessories for several groups. Their first stop was on the United States Forest Reserve in Nebraska, where they gathered materials for the Prairie Chicken and the Burrowing Owl groups. Mr. Chapman was particularly fortunate in getting some excellent photographs, the first ever taken, of the Prairie Chicken in the acts of strutting and booming. He erected his blind on the open prairie and was in it while nineteen of the birds were going through the evolutions at one time around him, entirely unconscious of his presence.

From Nebraska the party went to Tucson, Arizona, where specimens were collected for the Desert Bird group, together with reptiles, small mammals and vegetation for accessories. Material was gathered here too for the group of Allen's Jack Rabbit.

From Arizona the party, with the exception of Mr. Horsfal, went to southern California for additional material, and then went northward to Salt Lake City, thence to eastern Wyoming, where Mr. Figgins left the party to return to New York, and Mr. Chapman remained to collect Sharp-tailed Grouse on the plains and afterward go into the Rocky Mountains in quest of the Golden Eagle and other birds. Two of the most important features of the work are the color sketches and photographs obtained for use in making the group surroundings of the birds true to nature.

This expedition has been made possible through the generosity of the contributors to the North American Ornithological Fund, a fund which has been provided by several friends of the Museum for the adequate representation here of characteristic American birds, many of which are becoming exceedingly rare.

THE use of the Nature Study collections continues to expand. During the school year which has just closed 400 cabinets containing the collections have been in circulation among 269 schools, and the teachers report that they have been studied by 690,333 pupils.

FIELD WORK OF THE DEPARTMENT OF VERTEBRATE PALÆONTOLOGY

THE Department of Vertebrate Palæontology has three expeditions in the field for the season. One, under the leadership of Mr. Barnum Brown, will continue the search for Dinosaurs in the Cretaceous beds of Montana which has been prosecuted during the last two years with considerable success. Several very valuable specimens have already been obtained in this region, which was first brought to the attention of this Museum by Dr. W. T. Hornaday, director of the New York Zoölogical Park, Bronx Park. The most remarkable of these specimens is the gigantic carnivorous Dinosaur which Professor Osborn has named *Tyrannosaurus*, and of which he expects shortly to publish an extended description and restoration. A large part of the skeleton in splendid preservation has been found, and it is hoped that further quarrying in the hill where these remains were discovered will bring to light the remainder of the skeleton, so that it can be mounted. A fine skeleton of a Duckbilled Dinosaur found by ranchmen in the same region has been purchased by the Museum and will be disinterred and brought to New York this year. Other prospects already located are to be investigated, and a diligent search made for more. It is especially desirable to obtain a skeleton of the Horned Dinosaur *Triceratops*, of which we have already a fine skull from this region.

A second party under Mr. Walter Granger will continue the search for fossil mammals in the Eocene formations of Wyoming. The American Museum already possesses unrivaled collections from these formations, and it is desired to round out and complete them as fully as possible by thorough and systematic search in all the known localities where they occur. These fossils are of much scientific and considerable popular interest, since they represent the early stages in the evolution of the various races of mammals which now inhabit the earth as well as of the others which have become extinct. Mr. Granger's explorations in the Bridger basin during the last three seasons have already added largely to our collections, and the careful records and observations of our parties will help to solve several puzzling problems.

Particular attention will be given to any data bearing on the climate and conditions of life in that region when the Uintatheres and hornless Titanotheres, Four-toed Horses, primitive Rhinoceroses, carnivores, rodents and insectivores inhabited it, and on how their remains came to be entombed in the rock strata where they are found. It has already been discovered that the Bridger formation is derived from volcanic ashes, so that active volcanoes must have existed at no great distance. This may be at least partly true of the other Eocene formations also. It is probable, too, that the climate was then very different from that of the present day, and the height of the region above sea-level much less than now.

The third expedition under Mr. Albert Thomson will search the later Tertiary formations of South Dakota for fossil mammals and especially for Three-toed Horses. Previous explorations in this region and elsewhere have shown that there was a great number and variety of Three-toed Horses in America during the later Tertiary epochs, but most of them are incompletely known and the problem of the direct ancestry of the modern Horse is not yet satisfactorily solved. Doctor Matthew and Mr. Gregory will join the expedition during a part of the season and Professor Osborn hopes to be with Mr. Brown's party in Montana for a short time.

THE CONARD-FISSURE GROUP

HE Department of Vertebrate Palæontology has placed on exhibition in its hall a model of the Conard Fissure in northern Arkansas, an open crack formed by small upheavals of the earth's surface, in which have been found great numbers of fossil bones. The fissure is located in the forest-covered Ozark Hills about fifteen miles south of the town of Harrison. During the Pleistocene epoch it was open and was inhabited by large and small carnivorous animals, such as the bear, tiger and weasel, and by rats, mice, birds and snakes, the bones of which, together with those of other beasts which they had dragged into their lairs to devour and gnaw at leisure, were buried in the earthy and stony accumulations. About 10,000 skulls, jaws and

other bones were collected for the Museum, and these are but a small fraction of the entire number in the fissure. More than sixty different species of mammals, birds and reptiles, chiefly of a forest fauna, have been recognized, some of which still live in the same region. Many others now inhabit near and remote northern parts of the continent, while twenty-four species are entirely extinct. The fissure has thus given us a record of some of the kinds of animals in Arkansas at the time of the most southern extent of the great ice-sheet of the Glacial Period. A systematic series illustrating the different species found in this interesting fissure is in process of installation in a case which has been placed temporarily in the Dinosaur Hall.

THE SHETLAND PONY SKELETON.

THE series of specimens in the Horse Alcove of the Hall of Vertebrate Palæontology has been enriched by a beautiful skeleton of an adult Shetland pony, which was prepared and mounted at the Museum by Mr. S. H. Chubb. The skeleton represents the animal as if grazing, which admits the display of great skill in the adaptation of the bones to the necessities of the case. The downward reach of the head causes the backbone to be considerably arched, and this necessitates raising the angle of the pelvis several degrees toward the vertical, increasing the length of the hind limbs and tilting the body forward. The head is turned to the right, producing interesting curves in the backbone. The attitude of all the bones has been determined from a most careful study of photographs of the animal while alive. An examination of the skeleton shows that the weight of the body falls on the right front and the left hind foot, bringing them both very near the median line, modifying the position of the scapulæ and elevating the left side of the pelvis.

The skeleton of the Shetland pony has been placed beside that of the great Percheron draft horse, marking the extremes of development produced by artificial selection. The contrast between the two animals is well shown in the following table of measurements:

	Shetland Pony.	Percheron.
Weight	170 lbs.	2160 lbs.
Height	33⅜ in.	5 ft. 6½ in.
Bulk of humerus	9½ cu. in.	114 cu. in.
Bulk of femur	13½ cu. in	155¼ cu. in.

THE RUSSEL GULCH METEORITE.

THROUGH the generosity of Professor C. F. Chandler of Columbia University the Museum has received as a gift more than one-third of the original and unique mass of the Russel Gulch meteorite, together with a cast of the whole. The weight of this portion of the meteorite is eleven pounds and three ounces. The specimen shows an etched face covering an entire section through the mass, giving coarse and somewhat wavy outlines of kamacite rods, in marked contrast with the fine structure in the example of the same meteorite in the Ward-Coonley collection of meteorites.

This meteorite was found in Russel Gulch, Gilpin County, Colorado, in 1863 and was first described by Professor J. Lawrence Smith in the *American Journal of Science* in 1866. The original mass weighed 29 pounds.

THE AMERICAN ASSOCIATION OF MUSEUMS.

ON May 15 a convention was held at the Museum for the purpose of organizing an association of the museums of North and South America. The attendance was large, and among those who came from great distances in order to testify to their interest in the movement were Mr. W. A. Bryan, of the Bernice Pauahi Bishop Museum, Honolulu; Professor J. E. Talmage, of the Deseret Museum, Salt Lake City; Professor E. H. Barbour, of the University of Nebraska; and Doctor P. M. Rea, of the Museum of the College of Charleston, S. C. The Field Museum of Chicago, the Art Institute of Chicago, the St. Louis Public Museum, the various museums and art institutions of Boston and vicinity, the museums of various kinds located in the vicinity

of New York, as well as the museums of Philadelphia, Pittsburg and other leading cities, were well represented.

The meeting was called to order at 10:30 A.M., by Doctor W. J. Holland, of the Carnegie Museum, and upon his motion Doctor Hermon C. Bumpus, of the American Museum, was made temporary chairman. Doctor George A. Dorsey of the Field Museum was made temporary secretary. A committee on permanent organization, consisting of Doctor W. J. Holland, of the Carnegie Museum; Doctor Wm. M. R. French, of the Art Institute of Chicago; Doctor P. M. Rea, of the College of Charleston; Professor James E. Talmage, of the Deseret Museum of Salt Lake City; and Doctor W. P. Wilson, of the Philadelphia Commercial Museums, was appointed.

A final organization was effected by the election by ballot of Doctor Hermon C. Bumpus as president, Doctor Wm. M. R. French as first vice-president and Doctor W. J. Holland as second vice-president. Doctor George A. Dorsey was chosen secretary and Doctor W. P. Wilson treasurer. Councilors were elected as follows: To serve for three years—Doctor Richard Rathbun, of the United States National Museum; Professor E. S. Morse, of the Peabody Academy of Sciences, Salem, Mass.; to serve for two years—Doctor N. L. Britton, of the New York Botanical Garden; Professor J. E. Talmage, of the Deseret Museum, Salt Lake City; to serve for one year—Doctor F. A. Lucas and Doctor Wm. H. Goodyear, both of the Brooklyn Institute. The officers and the six councilors constitute the council of the Association, which formally assumed the name of "The American Association of Museums." A temporary constitution was adopted.

The gathering was declared by all who were present to be most successful, and it is doubtful whether any movement for the formation of an international association of this kind has ever been larger or more enthusiastic. A very gratifying feature was the receipt of a number of letters from the heads of museums in South America, giving in their adhesion to the movement. Several interesting papers were read and discussed.

The sessions of the second day were held at the Museum of the New York Botanical Garden, Bronx Park. The social features of the convention were the luncheon given by the Trus-

tees of the American Museum on the first day and that given by the Trustees of the New York Botanical Garden on the second day. The association adjourned to meet at the call of the council in the spring or early summer of 1907 at the Carnegie Museum in the city of Pittsburg.

MUSEUM NEWS NOTES.

AT the quarterly meeting of the Board of Trustees, held May 14, the following resolutions of thanks were adopted and elections announced.

To Mrs. William Earl Dodge, and her election as a Patron, in recognition of her gift of the "Willamette" meteorite;

To Mr. J. Pierpont Morgan, for his gift of the Warren Mastodon Collection;

To Mr. J. G. Phelps Stokes, and his election as a Patron, in recognition of his gift of ethnological material;

To Mrs. Frank K. Sturgis, and her election as a Fellow, for her contributions towards the purchase of Birds of Paradise;

To Mrs. Albert Bierstadt, and her election as a Fellow, in recognition of her gift of the painting entitled *The Landing of Columbus*, by her late husband;

To Professor C. F. Chandler, and his election as a Fellow, in recognition of his gift of the meteorite "Russel Gulch";

To the East Asiatic Committee for its donation of funds;

To the subscribers to the North American Ornithological Fund.

SOME important changes have been made in the Foyer. Specimens of several of the largest and most important meteorites known have been installed on pedestals around the room, the principal of which is Willamette, the 15½ ton iron from Oregon. Next, in point of size, is the 3-ton "Woman," and then the 1,100-pound "Dog," two members of the famous Peary group of three iron meteorites from Cape York, Greenland. Other falls illustrated here are Cañon Diablo, by a 1,087-pound mass

and one weighing 145 pounds; Long Island, the largest stone meteorite known, by two large and many small fragments; Forest City, a stone meteorite represented by a 75-pound mass, and Brenham, an iron-stone meteorite, represented by two large specimens, one of nickel-iron and the other of iron and stone. Tucson or the Signet Iron is represented by a full-size model in cast iron prepared from a model generously given to the Museum by the National Museum. The sections of the earth representing the North Polar and South Polar regions have been removed from the Foyer to the East Corridor where they have been hung upon the wall.

THE Jesup collection of the building stones of North America has been removed to a series of cases in the alcoves of the Hall of Forestry, where the improved conditions of light and installation render the specimens much more attractive than heretofore and more available for study.

MUCH progress has been made in the preparation of the models of the flowers, fruit and foliage of all the local native trees to be installed in connection with the Jesup Forestry Collection. When the local species have been represented the series of models will be extended as far as practicable to the other trees in the collection. These reproductions are all prepared direct from natural specimens, and, wherever possible, the natural object itself has been preserved and utilized in the model.

PROFESSOR BASHFORD DEAN, Honorary Curator of Fishes, has gone to Europe for three months, planning to remain most of the time in Germany. Here he will take the opportunity of making exchanges with collectors and museums, and he plans to make a number of purchases of specimens to fill in gaps in the exhibition series of fossil fishes. These purchases are rendered possible by a generous donation by a trustee of the Museum, Mr. Cleveland H. Dodge. Thanks to this fund it is now possible also to carry out a long-cherished plan to augment the collection of fossil fishes from a well-known American locality. To this end the curator's assistant, Mr. Louis Hussakof, aided by a graduate student of Columbia, Mr. Charles S. Mead, will be sent

on a collecting trip to the region of Scaumenac bay (Quebec), and from this classical locality it is hoped that they will secure many forms of the earliest fish-life of the American continent These important forms, it may be added, have hitherto been either misrepresented or very imperfectly represented in the Museum's collections. In the latter part of the season Mr. Hussakof will also visit several of the localities in Ohio, which yielded good results during the past season, and if time permits he will extend his trip to Iowa and Wisconsin in the further interest of the collections.

Two important collections of Mexican birds and mammals have recently been received from Mr. J. H. Batty, one made in the southern part of the State of Jalisco, the other in the State of Oaxaca. They contain many species not sent in his former collections. The birds include many large species, such as Hawks and Owls, Macaws, Parrots and the Mexican Turkey, and among the mammals are large series of Bats, Deer and various carnivores.

THE specimen of the great polar bear (*Thalarctas maritimus* (Phipps)) which was collected by Commander Robt. E. Peary at Payer Harbor, Greenland, in the spring of 1902 has been mounted at the Museum by Mr. James L. Clark and temporarily installed in the Main Hall of Mammals (No. 204, of the Second Floor). This magnificent specimen is a striking illustration of the advances which have been made within the past few years in the art of taxidermy. The animal is exhibited as if in the act of descending an iceberg.

THE Department of Ethnology has completed the first part of the installation illustrating the general features of the civilization of the Indians of the Great Plains. Some of the characteristics of these interesting tribes are: their almost complete dependence upon the flesh of the buffalo for food, the exclusive use of a tent made of buffalo skin stretched around a conical framework of poles, the very limited use of pottery, the great development of work in skins, the practice of the Sun Dance and the worship of the buffalo. The specimens in this exhibit

have been so selected and arranged as to demonstrate these characteristics. Each section of a case is devoted to a distinct phase of Plains life, and a label conveniently placed, states as briefly and concisely as possible, the facts pertaining to the specimens and their relation to the culture of an Indian tribe as a whole. As soon as practicable wall maps will be added to give the location of the principal tribes and their distribution throughout the area. This installation is the first step toward the re-arrangement of the halls of ethnology with the view to present systematically the general ethnography of North America.

DR. ALBERT ERNEST JENKS, formerly the Chief of the Ethnological Survey of the Philippine Islands, has been engaged in the cataloguing of the Philippine Ethnological collection, purchased at the St. Louis Exposition. Dr. Jenks is the chief authority upon the ethnology of the Philippines, and the Museum has been very fortunate in securing his services for this work. The collection now in the Museum is the largest and most complete Philippine collection in existence.

MR. WILLIAM ORCHARD recently made a visit to the site of the old Shinnecock Indian Reservation on Long Island and secured from one of the few survivors of that tribe the necessary information and assistance to construct an accurate model of the old type of grass-covered house used by these people. This model is now complete and will soon be installed with other material from the Shinnecock Indians. This house model is of special historical interest, because, as far as known, no other model, drawing or satisfactory description of this type of house has ever been made. A few years ago the Shinnecock were visited by Mr. R. M. Harrington, who secured a small collection containing practically all the ethnological specimens that existed.

A GROUP exhibiting the Black Foot medicine pipe and accessories has been installed in the Hall of North American Indians, No. 102 of the Ground Floor. The exhibit is arranged to show the exact manner in which the pipe and its elaborate paraphernalia were placed for use in the ceremonies of the Black Foot.

PROFESSOR M. H. SAVILLE sailed from New York in May on an archæological expedition, planned and financed by Mr. George G. Heye, into the northwestern portion of South America. After devoting some weeks to studies in Ecuador he will proceed northward into Colombia, where he will devote several weeks to the exploration of the Cauca Valley from Popayan to Antioquia. One of the objects of the study of this valley is to determine the origin of the peculiar black pottery which has been distributed therefrom to all the important museums of the world, but about which comparatively little is known.

REPRODUCTIONS in plaster of the famous Okazaki Collection of Chinese bronzes and pottery have been completed and placed on exhibition in the Chinese Hall (No. 301 of the Third Floor).

RECENT additions to the exhibits in the Hall of Invertebrates (No. 107 of the Ground Floor) include a series of models illustrating the development of the frog from the simple egg up to the tadpole stage, mounted specimens of the horned toad, and several lizards and tortoises and glass models of several Hydroids. A series of models illustrating the development of a coral in thirteen stages from the swimming larva as first set free from the parent polyp to the mature form has been installed in alcove No. 3. The Museum's magnificent specimen of the giant Gorgonia from the Japanese seas has been placed in a case at the north end of alcove No. 4. The specimens of the handsome Organ Pipe Coral have been rendered more interesting and instructive by the addition of reproductions of the animals to a portion of one of the specimens. The specimens of the great sponge, known as Neptune's Goblet, have been installed in a case by themselves at the end of alcove No. 2.

THE New York Aquarium has presented to the Museum the body of a large striped bass, *Roccus lineatus*, which died January 13, 1906. The fish was collected in Gravesend Bay, Long Island, and placed in one of the salt-water pools of the Aquarium May 14, 1894, when it was 10 inches long and weighed half a pound. At death the fish was 29 inches long, 6¾ inches

high and $3\frac{3}{4}$ inches wide just back of the gills, and it weighed 10 pounds 4 ounces. The animal was in fair condition, but was not fat. If it had been fat, it would have weighed at least 15 pounds. Its food was herrings, minnows, shrimps and clams. The bass will be mounted for the Museum and a cast of it will be sent to the Aquarium. In the Aquarium there are several others of the same lot which are alive and in good condition. These fish have been in captivity longer than any others in this country, more than twelve years, and are of particular interest as showing growth during existence in an aquarium.

THE important Warren Collection noted in the JOURNAL for April has been received, and some of the specimens have been placed on exhibition in the Dinosaur Hall (No. 407 of the Fourth Floor). The new exhibit consists of several slabs from the Connecticut Valley Trias (Newark system) showing the footprints of many different kinds of dinosaurs, fossil mud-cracks, raindrop impressions and other features of the old estuary.

IMPORTANT advances have been made in the installation of the collection of fossil fishes, which may be found in the tower room opening off from the Dinosaur Hall on the Fourth Floor. The most striking feature of this series consists, probably, in the representations and restorations of the great armored fish, *Dinichthys*, from the Devonian rocks of Ohio. These so-called "fish" were of uncertain relations, but they must have been formidable denizens of the ancient seas on account of their great size (length, 20 feet) heavy armor and strong jaws and teeth. The armored fishes disappeared at the close of the Devonian, leaving no descendants which have survived to the present time. The sharks are illustrated in their phases of development from the primitive forms upward.

SAMUEL B. HOFFMAN, Esq., has generously provided funds for the continuation of the work of the Hoffman Ethnological Expedition in the Black Mountains of North Carolina, and the curator of the Department of Entomology, Mr. W. Beutenmüller, is now in the field collecting.

AUGUSTUS L. CLARKSON has given the Museum a collection of insect architecture and the entomological library formed by his brother, the late Frederick Clarkson. The collection consists of two large cases containing a popular display of the well-known insects, their homes, food and, to some extent, their life history. These cases have been installed beside the entrance of the Hall of Entomology (No. 307 of the Third Floor).

THE observation hive of the Honey Bee has been placed in position in the hall of Entomology (No. 307 of the Third Floor), and its occupants may be watched at their honey making every day.

THE Department of Conchology has received from C. D. Guyer some well-prepared specimens of the local molluscan fauna. The specimens include exquisitely cleaned individuals of *Petricola pholadiformis*, Lam., and *Pholas tunicata*, Say, both taken at Barren Island, in crowded colonies, in hard resistant submerged turf beds. From the Bronx River and from the lake in Prospect Park, Brooklyn, Mr. Guyer obtained large and living examples of *Unio* and *Anodonta*. *Ensatella americana* Gould, in perfect condition, with uninjured epidermis, was also received from Long Island, through the same collector. The *Pholas* showed the supplementary valves uninjured; and the *Petricola* which, unless carefully treated, will so compress its valves as to crack and disfigure them, was also perfect.

THE Bruce Fund continues to augment the mineral collection, and in the last few months has added some interesting Silvers from Cobalt, Ontario, Canada, among which are the curious antimonial bodies, which seem to grade into true Dyscrasite on the one hand, and into pure Silvers on the other. Together with these was obtained a remarkable specimen showing a veinlet of native Bismuth between walls of calcite.

A STRIKING Silver from Lake Superior, Michigan, associated with Copper, Calcite and Epidote, is quite unlike the other Silvers in the collections from the same region, being composed of rough and twisted sheets implanted in the rock and rising from it in broken foliæ.

DUMORTIERITE from southern California, recently made the subject of a study by Doctor Schaller of the U. S. Geological Survey, Bröggerite, Malacon and Heulandite from Norway, and an exchange specimen of Riebeckite from the well-known collector, Walter F. Ferrier, are among the more important mineral accessions.

A NOBLE group of extraordinarily large and perfect pink Beryls associated with pink and green Tourmaline crystals has been added to the Gem Collection. The specimen is from the famous locality near Pala, San Diego County, California, which has furnished the world with the gem Kunzite in addition to gem Tourmalines and Beryls.

THE reptiles which have been exhibited for a long time in the Mammal Hall on the Third Floor in the central portion of the building (No. 304) have been removed to their new position in the East Mammal Hall (No. 207) of the Second Floor, where all the reptiles and reptile groups have been assembled for temporary exhibition.

THE west stairway between the Second and Third Floors is now devoted to the exhibition of the principal part of the Museum's collection of Audubboniana. The portrait of the famous naturalist together with some of his oil-paintings, water-colors, sketches, original plates of the elephant folio edition, his clothing and gun have been installed so that they may be readily seen and examined by those interested in Audubon and his work.

NEWS comes that the Tjader Expedition into British East Africa reached the end of their railway journey in safety, and that a company of fifty-three Zulus have been engaged for the journey on foot through the forest. While on the railway journey to Nairobi Mr. Tjader secured a fine lion, two Thomas's gazelles and three hartbeests. Zebras by the hundred, gazelles in immense herds and many hartbeests were seen from the car window.

THE lectures to school children from January 1 to June 1 were attended by 17,184 pupils from the public schools.

List of Birds Found Within Fifty Miles of the American Museum of Natural History, New York City.[1]

Order PYGOPODES. Diving Birds.

Family COLYMBIDÆ. Grebes.

Holbœll's Grebe (*Colymbus Holbœlli*). A rather uncommon spring and fall migrant and less common winter resident.

Horned Grebe (*Colymbus auritus*). A common spring and fall migrant and not uncommon winter resident.

***Pied-billed Grebe; Diedapper; Dabchick; Hell Diver** (*Podilymbus podiceps*). Occurs chiefly as a migrant. In northern New Jersey and the Lower Hudson Valley it is common, but on Long Island is of "comparatively rare and infrequent occurrence" (Dutcher, MS). During favorable seasons a few pass the winter here. I know of no definite instance of its breeding. (See group, second floor of Museum).

Family GAVIIDÆ. Loons.

Loon (*Gavia imber*). A common migrant and less common winter resident. (See group, second floor).

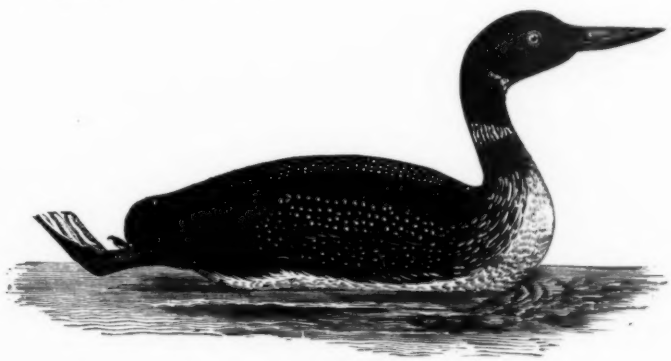


Fig. 1. Loon.

Black-throated Loon (*Gavia arctica*). Breeds in the far north, migrating southward to southern Canada. The only record of its occurrence near New York is based on an adult male (Coll. Am. Mus. No. 64,610) taken April 29, 1893, between Sands Point and Execution Lighthouse, L. I. (Dutcher, Auk, X, 1893, p. 265).

Red-throated Loon (*Gavia lumme*). A not uncommon winter resident, but more frequently found during the migrations.

[1] Issued also in separate form as **Guide Leaflet, No. 22.**

FAMILY ALCIDÆ. AUKS, MURRES AND PUFFINS.

Puffin (*Fratercula arctica*). There is but one recent record of its occurrence, December 15, 1882, Center Moriches, L. I. (Dutcher, Auk, V, 1888, p. 171).

Black Guillemot (*Cepphus grylle*). Breeds from the Bay of Fundy northward; in winter migrates southward, regularly to Massachusetts. It has been found but once in Connecticut (Stony Creek, Dec. 1887.—Sage, Auk, VII, 1890, p. 283), and the only Long Island record, given by Lawrence, is apparently based on a specimen in the Lawrence Collection labeled "Long Island" (Coll. Am. Mus. No. 64,614).

Brünnich's Murre (*Uria lomvia*). Breeds from the Magdalen Islands northward; in winter migrates southward as far as New Jersey. On the western end of Long Island it is as a rule uncommon; at the eastern end it occurs more frequently, but is irregular (Dutcher, Auk, II, 1885, p. 38). During some seasons, however, the bird becomes common in our waters (Averill, Auk, VIII, 1891, p. 307). Giraud's record of *"Uria troile"* doubtless refers to this species. Specimens in the Lawrence Collection originally labeled *"U. troile"* are *U. lomvia*. Records of the occurrence of this species on Long Island during the winter are given by Braislin (Auk, XX, 1903, p. 51).

Razor-billed Auk (*Alca torda*). Breeds from the Magdalen Islands northward; in winter migrates southward, regularly to Long Island and rarely to Virginia and North Carolina.

Dovekie (*Alle alle*). A species of the far north, migrating southward in winter, more or less regularly to New Jersey. With us its numbers vary during different winters. It is considered by Dutcher to be generally a rare bird on Long Island (Abst. Linn. Soc. No. 4, 1892, p. 6), but is given by Scott as a regular winter visitant on the New Jersey coast (Bull. Nutt. Orn. Club, IV, 1879, p. 228).

ORDER LONGIPENNES. LONG-WINGED SWIMMERS.

FAMILY STERCORARIIDÆ. SKUAS AND JÆGERS.

Pomarine Jæger (*Stercorarius pomarinus*). Passes the nesting season chiefly within the Arctic Circle and migrates southward from July to late October, during which period it is sometimes not uncommon off our coast, its presence depending largely on the abundance of the small fish on which it feeds (Baird, Auk, IV, 1887, p. 71).

Parasitic Jæger (*Stercorarius parasiticus*). Occurs off the coast in this vicinity as a regular migrant with the preceding species.

Long-tailed Jæger (*Stercorarius longicaudus*). During its migration it is sometimes not uncommon off our coast.

FAMILY LARIDÆ. GULLS AND TERNS.

Ivory Gull (*Pagophila alba*). A boreal species of which there appears to be but one record, that of an adult taken at Sayville, L. I., January 5, 1893 (Dutcher, Auk, XII, 1895, p. 290).

Kittiwake Gull (*Rissa tridactyla*). A common late fall transient visitant and a comparatively rare winter resident, occuring generally some distance off-shore (Dutcher, MS).

Glaucous Gull; Burgomaster (*Larus glaucus*). Several specimens have been killed on the Lower Hudson River, and off Long Island it is found regularly in small numbers (Dutcher, MS).

Iceland Gull (*Larus leucopterus*). A northern species of which but one valid record exists for this vicinity, Rye, N. Y. March 3, 1894 (Porter, Auk, XII, 1895, p. 76; see also Dwight, Auk, XXIII, 1906, p. 37, where a second specimen reported by Porter, and incorrectly recorded by Chapman as *leucopterus*, is given as *L. kumlieni*).

Kumlien Gull (*Larus kumlieni*). There are two records of this rare Gull for this vicinity, one is based on an immature male shot March 8, 1898, at Rockaway Beach, L. I. (Braislin, Auk, XVI, 1899, p. 190 and XXII, 1905, p. 168, where the specimen is definitely identified), the other an immature female taken February 16, 1894, at Stamford, Conn. (Porter, Auk, 1895, p. 76; see also Dwight, Auk, XXIII, 1906, p. 37, where this specimen incorrectly identified by Chapman is re-determined).

Great Black-backed Gull (*Larus marinus*). A regular winter resident not uncommon along the coast, but rarely ascending our rivers.

***Herring Gull** (*Larus argentatus*). This is the common winter Gull of our harbor and coast. It arrives from the north in September and is abundant until April. The adults are pearl gray; the immature birds, or young born the previous summer, are grayish brown. There has been an evident increase in the numbers of this species since certain of its breeding grounds have been protected. Braislin states that non-breeding birds are now common on the south shore of Long Island during the summer (Auk, XXII, 1905, p. 168).

Ring-billed Gull (*Larus delawarensis*). A rather uncommon spring and fall migrant and winter resident (Dutcher, MS). Braislin (Auk, XXII, 1905, p. 168) states that this species is not uncommon on Long Island in the summer, that it occurs in large numbers in October, but that he has no record later than November 17.

Laughing Gull (*Larus atricilla*). Formerly a common summer resident on Long Island, but now known to nest only on Great South Bay, where it is rare. (See group, second floor).

Bonaparte's Gull (*Larus philadelphia*). A regular spring and fall migrant, sometimes seen in winter.

Little Gull (*Larus minutus*). This is a European species; the only satisfactory records of its occurrence in North America are those of immature birds taken on Fire Island, Long Island, September 15, 1887 (Dutcher, Auk, V, 1888, p. 172), and Rockaway Beach, L. I., May 10, 1902 (Braislin, Auk, XX, 1903, p. 52).

Sabine's Gull (*Xema sabinii*). A circumpolar species breeding in the Far North and rarely coming as far south as northern United States. Giraud records a specimen shot at Raynor South, Long Island, "July, 1837."

Gull-billed Tern (*Gelochelidon nilotica*). A southern species breeding as far north as Virginia, and wandering occasionally to Maine. There are several Long Island records, the most recent being two specimens taken at South Oyster Bay, July 4, 1882 (Dutcher, Auk, I, 1884, p. 34), and one shot from a flock of five on Shinnecock Bay, July 8, 1884 (Dutcher, Auk, II, 1885, p. 38).

Caspian Tern (*Sterna caspia*). A rather uncommon fall migrant. There appears to be but one spring record, that of two adult males taken at Amityville, L. I., May 12, 1898 (Braislin, Auk, XVI, 1899, p. 191).

Royal Tern (*Sterna maxima*). There is but one instance of its occurrence on Long Island, a specimen taken at Raynor South, August 27, 1831, by J. F. Ward (Am. Mus. No. 46,008, Lawrence Coll.).

Forster's Tern (*Sterna Forsteri*). More common in the interior than on the Atlantic coast, where it is not known to breed north of Virginia. It wanders irregularly northward and is sometimes found in this vicinity.

Common Tern; Sea Swallow (*Sterna hirundo*). Inhabits the greater part of the Northern Hemisphere; in North America breeds locally from the Arctic regions to the Gulf of Mexico. This was formerly an abundant bird along our coasts, but the relentless persecutions of millinery collectors have so reduced its numbers that it is now found in only a few isolated localities. Not many years ago it bred more or less commonly all along the Long Island coast, but until recently almost the only surviving large colony inhabited Big Gull Island. Even in this remote locality it was constantly persecuted by nest-robbing fishermen and egg collectors. Through the efforts of a number of bird-lovers, who raised a sum of money for the purpose, permission was obtained from the Lighthouse Board to have the lightkeeper on Little Gull Island appointed a special game-keeper to protect the Terns on Big Gull Island. The birds rapidly increased under this guardianship, but the subsequent use, by the United States Government, of Gull Island for the erection of fortifications has caused the Terns to abandon it. Colonies are now found at both the northern and southern ends of Gardiner's Island.

Roseate Tern (*Sterna dougalli*). "Temperate and tropical regions." In north America formerly breeding along the Atlantic coast northward irregularly to Maine; now rare north of southern New Jersey. A few pairs lived on Big Gull Island with the colony of Common Terns above mentioned, but I have not observed the species in either of the Gardiner's Island colonies.

The Arctic Tern (*Sterna paradisæa*) is included by Lawrence without remark. I know of no record of its occurrence near New York City, and Mr. Dutcher has but one specimen from Long Island, a male taken on Ram Island Shoals, July 1, 1884.

Least Tern (*Sterna antillarum*). Formerly a common summer resident in suitable places on the coasts in this vicinity, but now occurs only as a rare migrant.

Sooty Tern (*Sterna fuliginosa*). A southern species, not breeding north of North Carolina, but occasionally straying farther up the coast. It has been recorded from Lake Ronkonkoma, L. I. (Dutcher, Auk, III, 1886, p. 433), and Highland Falls, N. Y. (Mearns, Bull. Essex. Inst. XII, 1879, 87).

Black Tern (*Hydrochelidon nigra surinamensis*). A species of the interior, breeding from Kansas and Illinois to Alaska. Occurs on the Atlantic coast as an irregular migrant, usually in the fall, sometimes in considerable numbers.

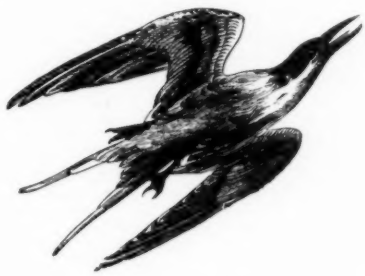


FIG. 2. TERN.

FAMILY RYNCHOPIDÆ. SKIMMERS.

Black Skimmer (*Rynchops nigra*). A southern species, not breeding north of Maryland, but occasionally wandering up the coast after the breeding season. There are several records of its occurrence on Long Island during the summer.

ORDER TUBINARES. TUBE-NOSED SWIMMERS.

FAMILY PROCELLARIIDÆ. FULMARS AND SHEARWATERS.

Fulmar (*Fulmarus glacialis*). An arctic species which sometimes wanders southward to Massachusetts. One was found in an exhausted condition at Ridgewood, New Jersey, December, 1892, after a storm (Hales, Orn. and Oöl., XVII, 1892, p. 39).

Cory's Shearwater (*Puffinus borealis*). A pelagic species, sometimes not uncommon off our coasts from August to November. It has been recorded from Amagansett (Dutcher, Auk, V, 1888, p. 5). to Cape Cod, Massachusetts, but doubtless occurs along our coast to the southward. Braislin records two specimens shot off Fire Island Inlet, October 4, 1902 (Auk, XXI, 1904, p. 287).

Greater Shearwater (*Puffinus gravis*). A pelagic species, found on the Atlantic Ocean from Cape Horn to Greenland. Its breeding place is unknown. It appears off our coasts in early June and is irregularly common until November.

Audubon's Shearwater (*Puffinus Iherminieri*). A southern species, breeding in the Bahamas and Bermudas, and rarely wandering northward to Long Island (Dutcher, Auk, V, 1888, p. 173).

Sooty Shearwater (*Puffinus griseus*). Known from the North Atlantic southward to South Carolina. It is found off our coasts associated with the Greater Shearwater, but is much less common.

The Stormy Petrel (*Procellaria pelagica*) is included by Lawrence in his "Catalogue of Birds Observed on New York Island" etc., but the record is not accompanied by data, nor is there a specimen of the bird from this vicinity in the Lawrence Collection.

Leach's Petrel (*Oceanodroma leucorhoa*). Breeds from Maine northward, and in the winter ranges southward to Virginia. It is rather uncommon in this vicinity.

Wilson's Petrel (*Oceanites oceanicus*). Nests in the islands of the Southern Seas (Kerguelen Island) in January and February and migrates northward after the breeding season, reaching the waters of our coasts in May and remaining until late September. It sometimes enters the Lower Bay of New York harbor in numbers.

FIG. 3. PETREL.

ORDER STEGANOPODES. TOTIPALMATE SWIMMERS.

FAMILY SULIDÆ. GANNETS.

Booby (*Sula leucogaster*). Coasts and islands of tropical and sub-tropical America, north of Georgia. Accidental on Moriches Bay, L. I. (Dutcher, Auk, X, 1893, p. 270).

Gannet (*Sula bassana*). A spring and fall migrant, usually occurring well off shore.

Family PHALACROCORACIDÆ. Cormorants.

Cormorant (*Phalacrorcorax carbo*). It is not common south of Maine, and is rare in this vicinity.

Double-crested Cormorant (*Phalacrocorax auritus*). A common spring and fall migrant.

Family PELECANIDÆ. Pelicans

White Pelican (*Pelecanus erythrorhynchos*). Now rare or accidental on the Atlantic coast. Two specimens have been taken in this vicinity, one at Canarsie Bay, L. I. (Dutcher, Auk, X, 1893, p. 270), the other, a male, at Roslyn, May 11, 1885 (Forest and Stream, XXIV, 1885, p. 328).

Brown Pelican (*Pelecanus occidentalis*). Breeds as far north as South Carolina and occasionally strays up the coast as far as Massachusetts. DeKay records a specimen from Sandy Hook.

Order ANSERES. Lamellirostral Swimmers.

Family ANATIDÆ. Ducks, Geese and Swans.

American Merganser; Shelldrake (*Merganser americanus*). Not common from November to April.

Red-breasted Merganser; Shelldrake (*Merganser serrator*). On Long Island it is a very common spring and fall migrant (Dutcher, MS).

Hooded Merganser (*Lophodytes cucullatus*). A not common migrant and occasional winter visitant.

Mallard (*Anas boschas*). An irregular transient visitant, occurring in spring, winter and fall.

***Black Duck** (*Anas obscura*). Breeds from New Jersey to Labrador and winters from Massachusetts southward. It formerly nested in this vicinity, but now is found chiefly as a migrant, and less commonly in the winter. It still nests at some points on the Jersey coast and in a few localities on Long Island, (Dutcher, MS). (See group, second floor).

The Red-legged Black Duck, a supposed race of the Black Duck has been recorded from Long Island by Braislin (Auk, XXI, 288), but the status of this form is as yet too unsettled to make it desirable definitely to introduce it here.

Gadwall (*Chaulelasmus streperus*). A very rare migrant in this vicinity.

European Widgeon (*Mareca penelope*). An Old World species which occurs rarely on our coast. It has been taken at Leonia, N. J. (Chapman, Auk, VI, 1889, p. 302).

Baldpate; American Widgeon (*Marecca americana*). An irregular transient visitant.

European Green-winged Teal (*Nettion crecca*). An Old World species of rare occurrence on our coasts. It is recorded from Trenton, N. J. (Abbott, Geology of New Jersey, 1868, p. 792), Hartford, Conn. (Treat, Auk, VIII, 1891, p. 112), and from Merrick, L. I., where two specimens were captured in December, 1900 (Braislin, Auk, XIX, 1902, p. 145).

Green-winged Teal (*Nettion carolinensis*). A rather uncommon spring and fall migrant and winter resident.

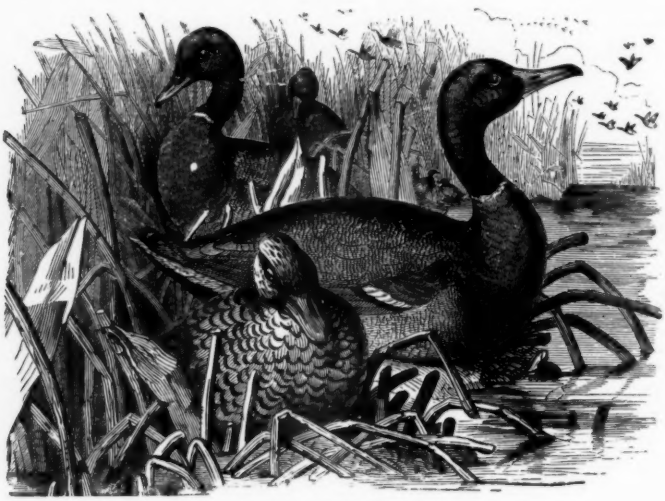


FIG. 4. MALLARDS.

Blue-winged Teal (*Querquedula discors*). A not common spring and common fall migrant.

Shoveller; Spoonbill (*Spatula clypeata*). A rare and irregular transient visitant.

Pintail; Sprigtail (*Dafila acuta*). A common migrant.

***Wood Duck; Summer Duck** (*Aix sponsa*). The Wood Duck is a rare summer resident on some of our more retired, wooded streams and becomes more common during the migrations.

The Rufous-crested Duck (*Netta rufina*) is an Old World species which is known as North American only from one specimen found in Fulton Market, New York City, and supposed to have been shot on Long Island.

Redhead (*Aythya americana*). On Long Island this species occurs as a regular migrant, in varying numbers, and is occasionally found in the winter (Dutcher, MS).

Canvasback (*Aythya vallisneria*). Occurs here as a not common migrant.

American Scaup Duck; Broad-bill; Blue-bill; Black-head; Raft Duck (*Aythya marila*). The commonest Duck of our bays, where it is sometimes seen in great numbers. It appears from the north about October 1 and remains until its feeding grounds are frozen over, returning as soon as the ice breaks in the early spring.

Lesser Scaup Duck; Little Blue-bill; Creek Broadbill; Raft Duck (*Aythya affinis*). Not as common as the preceding, with which its range in the main agrees.

Ring-necked Duck (*Aythya collaris*). North America, breeding only in the interior from Iowa northward. It is here a very rare, irregular transient visitant. The last record is that of Braislin (Auk, XVI, 1899, p. 191) who mentions a specimen from Great South Bay.

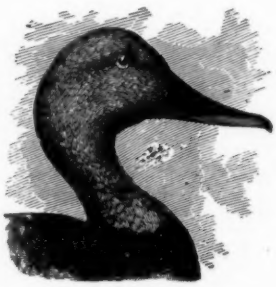


FIG. 5. CANVAS-BACK.

FIG. 6. REDHEAD.

American Golden-eye; Whistler (*Clangula clangula americana*). In favorable localities within our limits the Whistler is a not common migrant and winter resident.

Bufflehead; Butterball (*Charitonetta albeola*). A not uncommon migrant and winter resident.

Old-squaw; Old-wife; South-southerly (*Harelda hyemalis*). A common winter resident.

Harlequin Duck (*Histrionicus histrionicus*). Breeds from Newfoundland northward, and winters southward to New Jersey. A very rare winter visitant off our coast (Dutcher, Auk, III, 1886, p. 434; VI, 1889, p. 134).

The Labrador Duck (*Camptolaimus labradorius*), which formerly inhabited the Atlantic Coast, breeding from Labrador northward and wintering southward to New Jersey, is doubtless now extinct. The Labrador Duck was apparently once a not uncommon winter bird on Long Island. In a paper by William Dutcher (Auk, VIII, 1891, p. 201; see also Auk, XI, 1894, pp. 41, 175, 176.) summarizing our knowledge of its life-history and enumerating the extant specimens, Mr. George N. Lawrence is quoted as saying: "I recollect that about

forty or more years ago it was not unusual to see them in Fulton Market, and without doubt they were killed on Long Island; at one time I remember six fine males, which hung in the market until spoiled for want of a purchaser." Only forty-two of these Ducks have been recorded as existing in collections. Of this number seven are in the American Museum. (See group, second floor).

American Eider (*Somateria dresseri*). A rare winter visitant.

King Eider (*Somateria spectabilis*). Breeds from Labrador to the Arctic Regions, migrating southward regularly as far as eastern Long Island (Dutcher, Auk, V, 1888, p. 175).

American Scoter; Black Coot (*Oidemia americana*). A more or less common migrant and winter resident.

White-winged Scoter; White-winged Coot (*Oidemia deglandi*). A common migrant and winter visitant off our coasts.

Surf Scoter (*Oidemia perspicillata*). Found here with the preceding species.

Ruddy Duck (*Erismatura jamaicensis*). A not uncommon migrant, occurring in varying numbers.

Greater Snow Goose (*Chen hyperborea nivalis*). An irregular transient visitant.

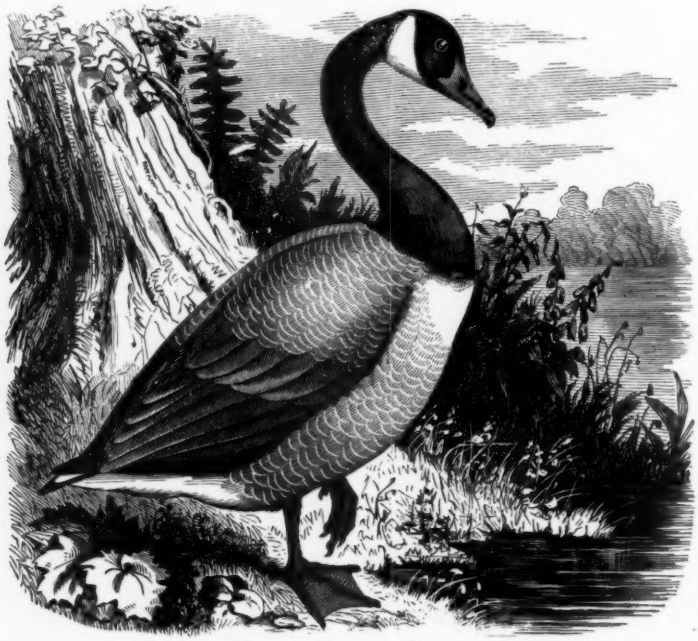


FIG. 7. CANADA GOOSE.

American White-fronted Goose (*Anscr. albifrons. gambeli*). North America, breeding far northward; in winter, south to Mexico and Cuba. Rare on the Atlantic Coast. It has been recorded on Long Island from Babylon (Giraud), Great South Bay Islip and Montauk (Dutcher, Auk, X, 1893, p. 271).

***Canada Goose** (*Branta canadensis*). A common migrant, appearing in November and remaining until our bays are frozen. In the spring the last birds pass on their northward journey as late as early May.

Hutchins's Goose (*Branta Canadensis hutchinsi*). A rare migrant in this vicinity.

White-bellied Brant (*Branta bernicla glaucogaster*). A common bird, appearing from the north in October and remaining until our bays are frozen, when it retreats farther southward. In April it returns, and the migration is not concluded until May.

Black Brant (*Branta nigricans*). This is a western species which is occasionally found on our coasts. It has been recorded from Egg Harbor, N. J. (Lawrence), Babylon and Islip, L. I. (Dutcher, Auk, 1893, pp. 266, 271).

Barnacle Goose (*Branta leucopsis*). An Old World species, occurring accidentally on our coasts. A specimen was killed on Jamaica Bay, L. I., in October, 1876 (Lawrence, Bull. Nutt. Orn. Club, II, 1877, p. 18).

Whistling Swan (*Olor Columbianus*). Breeds in the far north, and winters as far south as the Gulf of Mexico. It is an exceedingly rare bird on the Atlantic coast north of the Chesapeake. A recent record is that of a bird killed at Flatlands, L. I., within the limits of Greater New York, on Dec. 24, 1901. (Braislin, Auk, XX, 1903, p. 52).

ORDER HERODINES. HERONS, STORKS, IBISES, ETC.

FAMILY IBIDIDÆ. IBISES.

White Ibis (*Gura alba*). A bird of the Southern States, which has been recorded twice from this vicinity (Raynor South and Moriches, L. I., Giraud).

Glossy Ibis (*Plegadis autumnalis*). An Old World species of "irregular distribution in America." It has been recorded once from Southampton L. I., and once from Canarsie Bay, L. I. (Dutcher, Auk, X, 1893, p. 271).

FAMILY ARDEIDÆ. HERONS, EGRETS, BITTERNS, ETC.

***American Bittern** (*Botaurus lentiginosus*). "Temperate North America, south to Guatemala and the West Indies"; breeds but rarely south of Virginia. In this vicinity it is not common during the summer.

Least Bittern (*Ardetta exilis*). A locally common summer resident.

Great Blue Heron (*Ardea herodias*). With us it is a common migrant, and is probably found as a summer resident in a few localities. It is generally known by the name of "Crane."

American Egret (*Herodias egretta*). A southern species, breeding as far north as Virginia, and after the breeding season wandering northward in small numbers. It is here a rare and irregular summer visitant, occurring between August 1 and the last of September (Dutcher, Auk, X, 1884, p. 32). Comparatively recent records of the occurrence of this species are those of Braislin (Auk, XVII, 1900, p. 69; XIX, 1902, p. 145) and Owen (Auk, XV, 1898, p. 51).

Snowy Heron (*Egretta candidissima*). One of three individuals seen near Sayville, L. I., May 30, 1885, by William Dutcher and L. S. Foster was "carrying a long stick in its bill" (Dutcher, Auk, III, 1886, p. 435), and possibly was preparing to breed. Now an exceedingly rare bird breeding in a few isolated localities in Florida. Birds identified in life as this species are more apt to be the young of the Little Blue Heron (Braislin, Auk, XIX, 1902, p. 145).

Little Blue Heron (*Florida cærulea*). This southern species, like the preceding, wanders northward in small numbers after the breeding season, and a few are sometimes found near New York. (See group, second floor).

***Green Heron** (*Butorides virescens*). One of our commonest Herons and known under a great variety of names. It haunts the banks of streams and ponds and places its nest of sticks in a bush or the lower branch of a tree.

***Black-crowned Night Heron**; **Quawk** (*Nycticorax nycticorax nævius*). A locally common summer resident. There is a colony containing about 500 pairs not far from New York City. The popular name "Quawk," is derived from the call of the bird.

Yellow-crowned Night Heron (*Nyctanassa violacea*). Breeds from South Carolina southward and occasionally strays up the coast as far as Massachusetts. There is but one definite record for this region, that of a specimen taken in April, near Freeport, Queens County, L. I. (Dutcher, Auk, X, 1893, p. 286).

Order PALUDICOLÆ. Cranes, Rails, etc.

Family RALLIDÆ. Rails, Gallinules and Coots.

King Rail (*Rallus elegans*). Breeds as far north as Connecticut and has been known to stray to Maine. It is a rare summer resident of our fresh-water marshes (Dutcher, Auk, V, 1888, p. 176).

Clapper Rail; **Meadow Hen**; **Marsh Hen** (*Rallus crepitans*). This is an exceedingly common summer resident of the salt marshes of our coasts. Occasionally it winters in our region. (See group, second floor).

Virginia Rail (*Rallus virginianus*). A locally common summer resident, a few remaining during the winter.

Sora; **Carolina Rail**; **Rail-bird** (*Porzana carolina*). A rare summer resident in this vicinity, but in the fall it becomes common, feeding on wild rice of our marshes where, however, it is yearly becoming less numerous.

Yellow Rail (*Colurnicops noveboracensis*). Little is known about the nesting habits of this bird. It haunts grassy marshes and seeks safety by hiding or running, and for this reason is rarely seen. Several have been taken during the fall migration in this vicinity, and it is doubtless more common than is generally supposed. (See group, third floor.)

Black Rail (*Creciscus jamaicensis*). This bird, though much rarer, has as far as known the same habits as the preceding species and like it is very difficult to observe. It has been taken in the spring at Jamaica Bay and doubtless breeds in this vicinity, since its nest has been found at Saybrook, Conn. (Clarke, Auk, I, 1884, p. 394). (See group, third floor).

Corn Crake (*Crex crex*). This is an Old World species which sometimes strays to Greenland and our Atlantic coast. In this region there are records for Sag Harbor, L. I. (Dutcher, Auk, III, 1886, p. 435), Oakdale, L. I. (Dutcher, Auk, V, 1888, p. 177), and Saybrook, Conn. (Clark, Orn. and Oöl., XIII, 1888, p 45).

Purple Gallinule (*Ionornis martinica*). Tropical America, breeding as far north as South Carolina, and straying casually to Maine. There are but two definite records for this region, Middle Island, L. I. (Helme, Orn. and Oöl., VII, 1882, p. 118) and Indian Pond, near Flatlands, L. I. (Dutcher, Auk, X, 1893, p. 272).

Florida Gallinule (*Gallinula galeata*). Temperate and tropical America, breedng as far north as Maine, and wintering from Florida southward. It breeds only locally in the northeastern part of its range, frequenting the borders of ponds or streams surrounded by marshy grounds. Its nest has not been found in the immediate vicinity of New York City, where it is known only as a rare migrant.

***Coot**; **Mud-hen**; **Crow-duck** (*Fulica americana*). The Mud-hen is a not uncommon bird during migration, but it is recorded as breeding only near Morristown, N. J. (Thurber, True Democratic Banner, newspaper, Nov. 10, 1887).

ORDER LIMOCOLÆ. SHORE BIRDS.

FAMILY PHALAROPODIDÆ. PHALAROPES.

Red Phalarope (*Crymophilus fulicarius*). The Phalaropes are pelagic birds, not often coming to our coasts unless driven shoreward by storms. There are both August and May records for this species on Long Island.

Northern Phalarope (*Phalaropus lobatus*). This bird occurs with us as a regular migrant, and after severe storms it is sometimes common in flocks. (Dutcher, Auk, 1884, p. 33).

Wilson's Phalarope (*Steganopus tricolor*). Interior of North America, breeding from northern Illinois northward. With us it is a very rare and irregular migrant.

FAMILY RECURVIROSTRIDÆ. AVOCETS AND STILTS.

American Avocet (*Recurvirostra americana*). A bird of the interior, breeding from Texas to the Saskatchewan. Giraud mentions it as casual on Long Island, and says that a few bred at Egg Harbor, N. J. (Dutcher records four individuals seen by Col. Nicholas Pike on Long Island as follows: Ponquogue, 1844; Canarsie Bay, 1847; Southampton, two, no date (Auk, X, 1893, p. 272).

Black-necked Stilt (*Himantopus mexicanus*). A southern species, breeding in the Gulf States and locally in the Mississippi Valley and westward; rare on the North Atlantic coast. Giraud mentions it as "unfrequent," and Dutcher records two specimens taken by Colonel Pike on Great South Bay, one of them in 1843 (Auk, X, 1893, p. 272).

FAMILY SCOLOPACIDÆ. SNIPES, SANDPIPERS, ETC.

European Woodcock (*Scolopax rusticola*). The only record for the occurrence of this species in this vicinity is based on a specimen found in Washington Market, December 6, 1859, which was said to have been killed near Shrewsbury, N. J. (Lawrence, Ann. Lyc. Nat. Hist., VIII, 1866, p. 223).

***Woodcock** (*Philohela minor*). The woodcock is a not uncommon summer resident and more numerous fall migrant. Owing to the clearing of timber areas, draining of lands and demands of sportsmen, it is however, yearly decreasing in numbers in the vicinity of New York. It arrives early in March, and does not leave us until the ground is frozen. (See group, second floor).

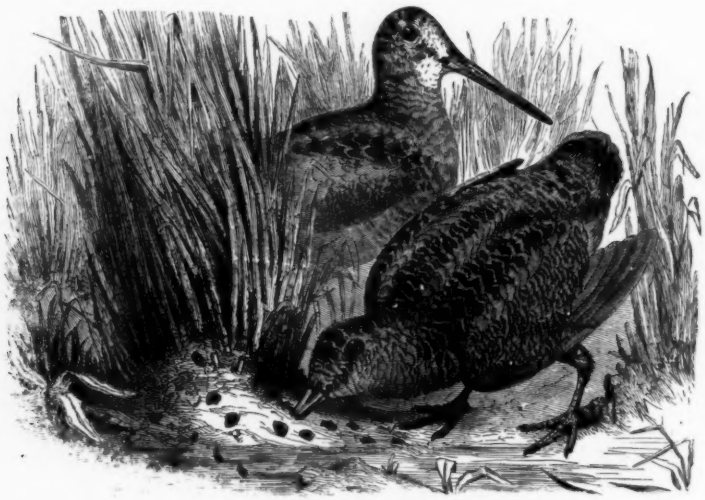


FIG. 8. WOODCOCK.

Wilson's Snipe; English Snipe (*Gallinago delicata*). A not uncommon migrant, and crippled birds are said to have nested on several occasions near Chatham, N. J. (Herrick, Forest and Stream, XII, 1879, p. 165). During mild seasons a few pass the winter here (Dutcher, MS).

Dowitcher (*Macrorhamphus griseus*). A common migrant, arriving from the south about May 1 and returning from the north between July 10 and August 15.

Migrating Snipe, Sandpipers and Plovers fly, as a rule, some distance off the land and if the weather is calm and clear, very few birds are found on our shores. If, however, during their migrations storms from the right quarter, or fogs occur, many birds are driven shoreward and there results what among sportsmen is known as a "flight."

Long-billed Dowitcher (*Macrorhamphus scolopaceus*). This western representative of our common Dowitcher is a rare but regular late fall migrant along the Atlantic coast.

Stilt Sandpiper (*Micropalama himantopus*). A not common but by no means rare migrant, occurring chiefly during the fall migration from the middle of July to the middle of September.

Knot; Robin Snipe (*Tringa canutus*). A common migrant, passing northward during May and returning from the middle of July to the first of October.

Purple Sandpiper (*Arquatella maritima*). A rare but regular winter resident.

Pectoral Sandpiper; Krieker (*Actodromas maculata*). A common and sometimes abundant fall migrant in this vicinity; less frequently seen in the spring. It returns from the north in early August, and its migration is concluded about the last of October.

White-rumped Sandpiper (*Actodromas fuscicollis*). A not uncommon spring and fall migrant.

Baird's Sandpiper (*Actodromas bairdi*). Casual on the Atlantic coast. There are several records for this vicinity, as follows: Rockaway, L. I., August, two specimens, and September, two specimens (N. T. Lawrence, Forest and Stream, X, 1878, p. 235), and Far Rockaway, L. I., August, one specimen (N. T. Lawrence, Auk, II, 1885, p. 273).

Least Sandpiper; Peep; Meadow Oxeye (*Actodromas minutilla*). This is one of our commonest Sandpipers, and shares the names "Peep" or "Oxeye" with the Semipalmated Sandpiper. It is seen in small flocks running along our shores and beaches. It passes northward during May and returns about July 10, the fall migration being concluded about September 1.

Red-backed Sandpiper; Lead-back (*Pelidna alpina sakhalina*). A very common migrant on our coasts, less common in the spring than in the fall. It migrates northward in early May and returns about September 1, remaining until November.

Curlew Sandpiper (*Erolia ferruginea*). "Old World in general, occasional in eastern North America." There are several records of its occurrence on Long Island.

Semipalmated Sandpiper; Peep; Sand Oxeye (*Ereunetes pusillus*). This is our most common Sandpiper, and during its fall migration it is abundant along our shores in small flocks. It migrates northward during May, returns about July 10, and the fall migration is not concluded until about October 1.

Western Sandpiper (*Ereunetes mauri*). This is the western representative of the preceding species. It is not infrequently found on our coast, generally associated with *E. pusillus*. Braislin (Auk, XVI, 1899, p. 191) records it as abundant on Long Island in the fall of 1897.

Sanderling; Surf Snipe (*Calidris alba*). An abundant migrant along our coasts, where, as a rule, it is found on the outer beaches. It passes northward during May and returns on its southward journey about July 10, from which date until October it is more or less numerous.

Marbled Godwit; Brown Marlin (*Limosa fedoa*). This is a rare bird on the Atlantic coast, where it occurs only as an irregular fall visitant.

Hudsonian Godwit; Ring-tailed Marlin (*Limosa hæmastica*). In this vicinity the Ring-tailed Marlin is an irregular fall migrant (Dutcher, Auk, III, 1889, p. 437). Kobbe (Auk, XXI, 1904, p. 79) records a flight of this species as occurring at Quogue, L. I., August 31, 1903.

***Greater Yellow-legs** (*Totanus melanoleucus*). A common migrant, arriving in the spring about the latter half of April and returning in the latter half of July, the migration not being concluded until November.

Yellow-legs; Summer Yellow-legs (*Totanus flavipes*). Very rare in the spring, but abundant during its southward migration, which begins about July 15 and ends in September.

***Solitary Sandpiper** (*Helodromas solitarius*). A not uncommon migrant passing northward in May and returning in July. It is not a true Shore-bird, but is more frequently found near fresh-water ponds and streams.

Willet (*Catoptrophorus semipalmatus*). In this vicinity it occurs only as a rare fall migrant. It is probable that the Western Willet (*C. s. inornata*) is also occasionally found on our coasts.

Ruff (*Pavoncella pugnax*). "Northern parts of the Old World, straying occasionally to eastern North America." There are three specimens of this bird in the American Museum from North America, two of which, in the Lawrence Collection, are labeled "Long Island," while the third is in the Elliot Collection and is labeled "Barnegat, N. J." (For record of the occurrence of this species in America, see Deane, Auk, XXII, 1905, p. 411; and Palmer, Auk, XXIII, 1906, p. 99.)

Bartramian Sandpiper; Upland Plover; Field Plover (*Bartramia longicauda*). A rather rare migrant and still rarer summer resident. It arrives about the middle of April and frequents fields and pastures.

Buff-breasted Sandpiper (*Tryngites subruficollis*). A bird of the interior, breeding in the far north and wintering in South America. It is very rare on the Atlantic coast. Giraud records "a party of five" as seen in August and September (N. T. Lawrence, Forest and Stream, X, 1879, p. 235); one was taken in August at Montauk Point (Berier, Bull, N. O. C., VI, 1880, p. 126); Dutcher mentions an August specimen from Suffolk County and a midsummer bird from Shinnecock Bay (Auk, VI, 1889, p. 136); and Braislin records a male taken August 30, 1903 at Rockaway Beach (Auk, XXII, 1905, p. 169).

***Spotted Sandpiper; Tip-up** (*Actitis macularia*). This is the common Sandpiper so frequently seen on our ponds, streams and beaches, and is one of the few members of this family which breeds here. It arrives about April 25 and remains until October.

Long-billed Curlew; Sickle-bill (*Numenius longirostris*). A rare and irregular fall visitant.

Hudsonian Curlew; Jack Curlew (*Numenius hudsonicus*). The Jack Curlew, as it is locally known, is a not uncommon migrant in this vicinity. It passes northward in May, and the southern migration occurs between the middle of July and the first of October.

Eskimo Curlew; Dough-bird; Fute (*Numenius borealis*). This species has decreased in numbers during recent years and is believed by some ornithologists to be on the verge of extinction. There is but one record of its recent occurrence, that of a male shot by R. L. Peavey at Rockaway Beach, L. I., September 14, 1902 (Braislin, Auk, XXI, 1904, p. 289).

FAMILY CHARADRIIDÆ. PLOVERS.

Lapwing (*Vanellus vanellus*). An Old World species, of accidental occurrence in America. The only record for eastern North America south of Greenland is that of a specimen shot at Merrick, L. I., December, 1883, (Dutcher, Auk, III, 1886, p. 438).

Black-bellied Plover; Beetle-head (*Squatarola squatarola*). A common migrant, more numerous in the fall. It passes northward from about April 15 to June 1, and the return migration occurs between August 1 and November 1.

Golden Plover; Green-back (*Charadrius dominicus*). A rare spring and common fall migrant, occurring chiefly in September.

Killdeer (*Oxyechus vociferus*). In the neighborhood of New York City the Killdeer is a rare summer resident and not uncommon migrant. It arrives in March and remains with us until November.

Semipalmated Plover; Ring-neck (*Ægialitis semipalmata*). The Ring-neck is one of our most common shore-birds. It passes northward in May and returns about July 15, the fall migration not being concluded until October 1.

Piping Plover (*Ægialitis meloda*). It is here a rare local summer resident and more common migrant, arriving in April and remaining until September.

Wilson's Plover (*Ochthodromus wilsonius*). Breeds as far north as Virginia, and strays casually to Nova Scotia. There are several records for Long Island (Dutcher, Bull. N. O. C., IV, 1879, p. 242; Auk, III, 1886, p. 438, Shinnecock Bay), and one for Bridgeport, Conn. (Averill, List of Birds found in the vicinity of Bridgeport, 1892, p. 9).

FAMILY APHRIZIDÆ. SURF BIRDS AND TURNSTONES.

Turnstone; Brant-bird; Calico-back (*Arenaria morinella*). With us it is a common migrant passing northward in May, returning about August 1 and remaining until September.

FAMILY HÆMATOPODIDÆ. OYSTER-CATCHERS.

Oyster-catcher (*Hæmatopus pallitus*). Breeds as far north as Virginia and occasionally strays to Nova Scotia. It is here of rare and irregular occurrence (Dutcher, Auk, X, 1893, p. 272).

ORDER GALLINÆ. GALLINACEOUS BIRDS.

FAMILY TETRAONIDÆ. GROUSE, PARTRIDGES, ETC.

***Bob-white; Quail** (*Colinus virginianus*). Quail are not uncommon in the vicinity of New York, but they are so eagerly hunted, that, as the country becomes more thickly settled, only the most rigid enforcement of the game-laws will preserve them from extermination. Recent severe winters have greatly decreased the numbers of this species, virtually exterminating it in some localities, and were it not for the liberation of southern birds by sportsmen, it is probable that the species would be exceedingly rare if not indeed extinct throughout most of the region surrounding New York City. (See group, second floor).

***Ruffed Grouse; Partridge** (*Bonasa umbellus*). Partridges are much less common with us than Quails. They are birds of the woods, and for this reason disappear with the forests, while Quails, on the contrary become more numerous as the country is cleared. (See group, second floor).

In the early part of the nineteenth century Pinnated Grouse or Heath Hens (*Tympanuchus cupido*) were abundant in some parts of Long Island, but they have been extinct for about sixty years (Giraud, Birds of Long Island, p. 195, and Dutcher, Auk, X, 1893, p. 272). As late as 1860 odd this species occurred in numbers on the Plains of the Jersey Pine Barrens west of Barnegat, where it was exterminated by indiscrimate shooting at all seasons (Chapman, Bird-Lore, V, 1903, p. 50).

The Wild Turkey (*Meleagris gallopavo silvestris*) is still found in small numbers in the wilder, more mountainous portions of Pennsylvania, but has

long been extinct in this vicinity. De Kay (Zoölogy of New York, II, Birds, 1844, p. 200) writes that he had not met with the species in New York State, but was informed at the time he wrote it was found in the counties of Sullivan, Rockland, Orange, Alleghany and Cattaraugus. This species is not mentioned by either Giraud or Lawrence.

ORDER COLUMBÆ. PIGEONS.

FAMILY COLUMBIDÆ. DOVES AND PIGEONS.

Passenger Pigeon; Wild Pigeon (*Ectopistes migratorius*). Fifty years ago the Wild Pigeon was an abundant bird in the vicinity of New York, but here, as elsewhere throughout its range, it has become very rare. In place of the thousands that used to visit us it is now observed irregularly and rarely. (Lawrence, Auk, VI, 1889, p. 196, and Dutcher, Auk, X, 1893, p. 274). There appears to be but one definite record since 1894 of the occurrence of the Wild Pigeon near New York, that of an immature male shot at Englewood, N. J., June 23, 1896, by C. I. Wood (Chapman, Auk, XIII, 1896, p. 341).

***Mourning Dove** (*Zenaidura macroura*). A common summer resident, under favorable circumstances passing the winter.

Ground Dove (*Columbigallina passerina terrestris*). This is a species of the South Atlantic and Gulf States. It has been once taken in this vicinity (Grinnell, Bull. N. O. C., III, 1878, p. 147), but its occurrence is purely accidental, and it is possible that the specimen captured was an escaped cage-bird.

ORDER RAPTORES. BIRDS OF PREY.

FAMILY CATHARTIDÆ. AMERICAN VULTURES.

Turkey Vulture; Turkey Buzzard (*Cathartes aura septentrionalis*). Of more or less regular occurrence in New Jersey as far north as Plainfield in the interior and Sandy Hook on the coast. It is also occasionally seen on Long Island. One record notes the occurrence of a flock of eight birds of this species in Orange County, N. Y. (Reynolds, Forest and Stream, XVIII, 1894, p. 181).

Black Vulture (*Catharista urubu*). Breeds from North Carolina southward, and occasionally strays as far north as Maine. There are records for Sandy Hook, N. J. (Robt. B. Lawrence, Bull. N. O. C., V, 1880, p. 116), and Coney Island, L. I. (Berier, Bull. N. O. C., VI, 1881, p. 126).

FAMILY FALCONIDÆ. FALCONS, HAWKS, EAGLES, ETC.

Swallow-tailed Kite (*Elanoides forficatus*). In this vicinity it has been recorded from Raynor South, L. I. (Giraud, Birds of Long Island, p. 13), "South shore of Long Island" (Berier, Bull, N. O. C., VI., 1881, p. 126), Chatham, N. J. (Herrick, Forest and Stream, XII, 1879, p. 165), and Piermont, N. Y. (Nicholas, Auk, XVII, 1900, p. 386).

***Marsh Hawk** (*Circus hudsonius*). A permanent resident, common except during the winter.

***Sharp-shinned Hawk** (*Accipiter velox*). It is here an uncommon summer and rare winter resident.

***Cooper's Hawk** (*Accipiter cooperi*). With us a not uncommon summer and rare winter resident. This bird, the Sharp-shinned Hawk and the rare Duck Hawk and Goshawk, are the only species of our Hawks which habitually live on birds. The others feed largely on insects and small field-mice, and being thus actually beneficial, should be protected by law.

Goshawk (*Astur atricapillus*). A rare winter visitant.

***Red-tailed Hawk** (*Buteo borealis*). The Red-tail is one of our commonest Hawks and is resident throughout the year.

***Red-shouldered Hawk** (*Buteo lineatus*). A permanent resident. It is probably our most common Hawk and with the Red-tail is the one to which the name "Chicken," or "Hen Hawk," is generally, but incorrectly, applied.

Swaison's Hawk (*Buteo swainsoni*). A western species of rare occurrence on the Atlantic coast. There is apparently but one record of its capture near New York City, that of a specimen shot near Cornwall, N. Y., October 14, 1892 (Dutcher, Auk, X, p. 83).

***Broad-winged Hawk** (*Buteo platypterus*). A rather uncommon summer resident.

Rough-legged Hawk (*Archibuteo lagopus sancti-johannis*). A rare winter resident.

Golden Eagle (*Aquila chrysaetos*). North America, of rare occurrence east of the Mississippi. It has been recorded from Islip, L. I. (Giraud), Canarsie, L. I. (Dutcher), Gravesend, L. I. (Johnson), Long Branch, N. J. (Chapman, Auk, XV, 1898, p. 54), and Highland Falls, N. Y. where Mearns states, it is occasionally observed and was formerly known to nest.

***Bald Eagle** (*Haliætus leucocephalus*). This Eagle is here a rather rare bird; it is said by Mearns to nest in the Highlands of the Hudson. On Long Island it is a not uncommon resident and breeds in several localities (Dutcher MS).

Gyrfalcon (*Falco rusticolus gyrfalco*). An arctic species, rarely visiting the United States. The only record for this vicinity is that of a specimen killed on Long Island in the winter of 1856 (Lawrence, Ann. Lyc. Nat. Hist., New York, VIII, 1866, p. 280; see also Brewster, Auk, XII, 1895, p. 180).

Black Gyrfalcon (*Falco rusticolus obsoletus*). "Labrador, south in the winter to Maine and New York." There is but one record of its occurrence in this vicinity, viz., a specimen shot in the fall of 1875, near Flushing, L. I. (Berier, Bull. N. O. C., VI, 1881, pp. 126, 247).

Duck Hawk (*Falco peregrinus anatum*). This Falcon, the "noble Peregrine" of Falconry, is a not uncommon migrant, especially along our coast, and is a rare summer resident along the Palisades and Highlands of the Hudson, where it is known to breed. (See group, second floor).

DUCK HAWK
Group, Hall No. 204

Pigeon Hawk (*Falco columbarius*). A common migrant, occurring chiefly on our coasts.

American Sparrow Hawk (*Falco sparverius*). With us it is a not common resident but abundant migrant along the coasts.

American Osprey; Fish Hawk (*Pandion haliætus carolinensis*). A locally abundant summer resident arriving early in April and remaining until October. At certain localities along our coasts, the Fish Hawk is found nesting in colonies.

FIG. 9. AMERICAN OSPREY.

FAMILY STRIGIDÆ. BARN OWLS.

American Barn Owl (*Strix pratincola*). Occasionally found as far north as Massachusetts, and breeds from Long Island southward through Mexico. The Barn Owl is here a rare permanent resident. There are numerous records of its nesting, and it appears to have increased in numbers during recent years.

FAMILY BUBONIDÆ. HORNED OWLS, ETC.

***American Long-eared Owl** (*Asio wilsonianus*). A rather uncommon resident.

Short-eared Owl (*Asio accipitrinus*). Common during the migrations, and while a few probably breed, their is no definite record of their doing so.

***Barred Owl** (*Syrnium varium*). Next to the Screech Owl this is our commonest Owl. Its loud, sonorous hooting, *whoo, whoo, whoo, too-whoo, too whoo-ah,* is heard in the spring and again in late summer and is familiar to many who are not acquainted with its author.

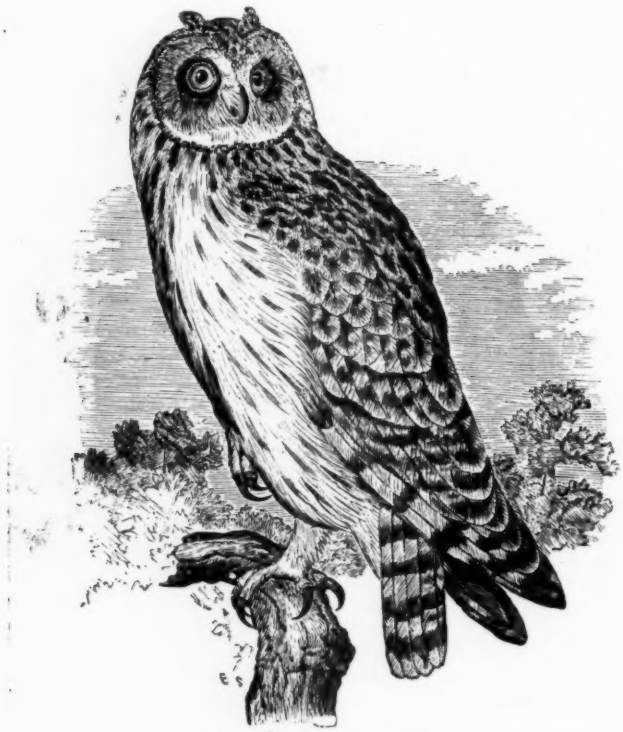


FIG. 10. SHORT-EARED OWL.

Great Gray Owl (*Scotiaptex nebulosa*). In winter to the northern border of the United States. An individual shot near Mendham, N. J., is the only one which has been recorded from near New York City (Thurber, True Democratic Banner, newspaper, Morristown, N. J., Nov. 10, 1887).

***Saw-whet Owl** (*Crytoglaux acadica*). A regular and, in some localities, a not uncommon winter resident.

Screech Owl (*Megascops asio*). The Screech Owl is the commonest and best known of our Owls. It is present throughout the year. (See group, second floor).

SCREECH OWL
Group, Hall No. 208

Great Horned Owl (*Bubo virginianus*). A rather rare resident. This is the only one of our Owls which habitually preys upon poultry, the others feed largely on field-mice and shrews.

***Snowy Owl** (*Nyctea nyctea*). An irregular winter visitant, sometimes occurring in considerable numbers.

Hawk Owl (*Surnia ulula caparoch*). There is apparently but one record of its capture in this vicinity, that of a specimen shot near Bay Ridge, L. I. (Dutcher Auk, X, 1893, p. 275).

ORDER COCCYGES. CUCKOOS, ETC.

FAMILY CUCULIDÆ. CUCKOOS, ANIS, ETC.

***Yellow-billed Cuckoo** (*Coccyzus americanus*). A common summer resident, arriving about May 10 and departing the last of September. (See group, third floor).

***Black-billed Cuckoo** (*Coccyzus erythrophthalmus*). A common summer resident arriving and departing at about the same time as the preceding species.

FAMILY ALCEDINIDÆ. KINGFISHERS

***Belted Kingfisher** (*Ceryle alcyon*). A common summer resident, arriving the latter part of March and remaining until the streams and ponds, from which it obtains its food, are frozen.

ORDER PICI. WOODPECKERS.

FAMILY ALCEDINIDÆ. KINGFISHERS.

***Hairy Woodpecker** (*Dryobates villosus*). A rather uncommon resident.

***Downy Woodpecker** (*Dryobates pubescens medianus*) next to the Flicker, the Downy is our commonest Woodpecker .

Red-cockaded Woodpecker (*Dryobates borealis*). Southern United States, westward to Indian Territory, and northward to Tennessee and Virginia. This bird is accidental near New York, the only record of its occurrence being based on a specimen taken at Hoboken, N. J. (Lawrence, Ann. Lyc. Nat. Hist., VIII, 1866, p. 291).

***Yellow-bellied Woodpecker** (*Sphyrapicus varius*). A common spring and fall migrant.

Pileated Woodpecker (*Ceophlœus pileatus abieticola*). "Formerly whole wooded region of North America; now rare or extirpated in the more thickly settled parts of the Eastern States." This large Woodpecker occurs near New York only as a very rare straggler; there are no recent records.

FIG. 11. RED-HEADED WOODPECKER.

***Red-headed Woodpecker** (*Melanerpes erythrocephalus*). A summer resident of local distribution and a not uncommon and sometimes abundant migrant. Occasionally it is found in winter.

Red-bellied Woodpecker (*Centurus carolinus*). Eastern United States breeding from Florida to Virginia, and in the interior, to Ontario and Southern Dakota; occasionally strays to Massachusetts; winters from southern Ohio southward. Giraud speaks of this bird as breeding on Long Island, but it now occurs here only rarely and irregularly.

***Flicker: High-hole; Clape** (*Colaptes auratus luteus*). Our commonest Woodpecker. It is resident, but is much more common in the summer than in the winter, and is particularly numerous during its migrations in September and October.

ORDER MACROCHRIES. GOATSUCKERS, SWIFTS, ETC.

FAMILY CAPRIMULGIDÆ. GOATSUCKERS.

FIG. 12. NIGHTHAWK.

***Whip-poor-will** (*Antrostomus vociferus*). In some localities near New York City the Whip-poor-will is a common summer resident. It arrives about May 1 and leaves about October 1.

***Nighthawk** (*Chordeiles virginianus*). The Nighthawk is here a more or less common local summer resident. Even in New York City, where it has been known to lay eggs on the house-top, its characteristic note, *peent, peent,* uttered while it is coursing for food, is not infrequently heard. It arrives early in May and migrates southward in September and October, sometimes occurring at this season in large flocks.

FAMILY MICROPODIDÆ. SWIFTS.

***Chimney Swift** (*Chætura pelagica*). An abundant summer resident, arriving the latter part of April and remaining until October. (See group, second floor).

FAMILY TROCHILIDÆ. HUMMINGBIRDS.

***Ruby-throated Hummingbird** (*Trochilus colubris*). This, the only species of Hummingbird found in eastern North America, is here a common summer resident, arriving early in May and remaining until October.

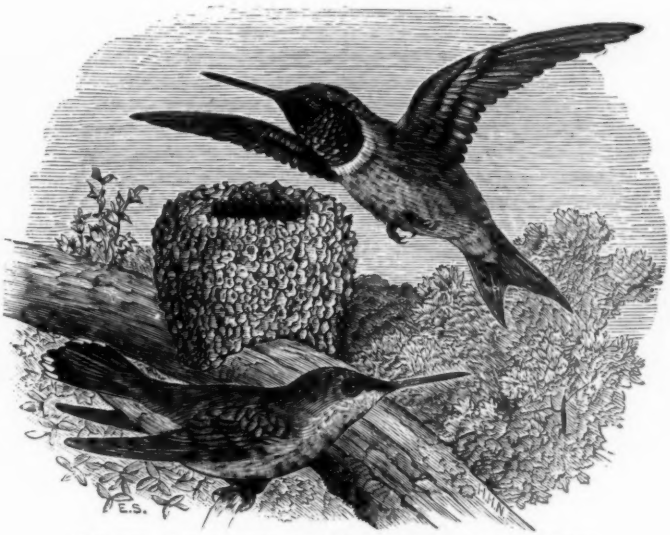


FIG. 13. RUBY-THROATED HUMMINGBIRDS AND NEST.

ORDER PASSERES. PERCHING BIRDS.

FAMILY TYRANNIDÆ. TYRANT FLYCATCHERS.

***Kingbird** (*Tyrannus tyrannus*). A common summer resident, arriving early in May and remaining until October. (See group, third floor).

Arkansas Kingbird (*Tyrannus verticalis*). A western species; the only records for this vicinity are those of a young male taken at Riverdale, N. Y., October 19, 1875, (Bicknell, Bull, N. O. C., IV, 1879, p. 60), and a specimen taken at Princeton, N. J., Sept. 29, 1894 (Phillips, Proc. D. V. O. C., II, p. 14).

***Great-crested Flycatcher** (*Myiarchus crinitus*). A common summer resident, arriving early in May and remaining until September.

***Phœbe** (*Sayornis phœbe*). A common summer resident arriving about March 20 and leaving early in November.

***Olive-sided Flycatcher** (*Nuttalornis borealis*). A migrant passing north in May, when it is apparently rare, and returning between the latter part of August and late September, when it is not uncommon.

***Wood Pewee** (*Horizopus virens*). A common summer resident of our woods, arriving about May 15 and remaining until the latter part of September.

***Yellow-bellied Flycatcher** (*Empidonax flaviventris*). A rather rare spring and not uncommon fall migrant, arriving in May and returning from its northern home early in August.

***Green-crested Flycatcher** (*Empidonax virescens*). A common summer resident of the Lower Hudson River Valley as far north as Sing Sing. On Long Island it apparently breeds on the north shore, while there are but two records for Connecticut, an adult taken at Suffield, June 24, 1874 (Merriam, Birds, Conn., p. 58) and a nest with young at Greenwich, June 25, 1893 (Voorhees, Auk, XI, 1894, p. 259). A rare summer resident in the vicinity of Plainfield, N. J. (Miller, MS). (See group, third floor).

Alder Flycatcher (*Empidonax trailli alnorum*). A rather rare migrant and a local summer resident. A nest and eggs, not fully identified, but with little doubt that of this species, was found by C. L. Brownell at Nyack, N. Y. At Plainfield, N. J., W. DeWitt Miller has found this species a locally common breeding bird (Auk, XVIII, 1901, p. 108; XX, 1903, p. 68).

***Least Flycatcher** (*Empidonax minimus*). A common summer resident; it arrives about May 1 and remains until late in September.

Family ALAUDIDÆ. Larks.

Skylark (*Alauda arvensis*). Individuals of this species have from time to time been liberated near New York City. In 1887 a small colony became established near Flatbush, L. I., where a nest containing young was found (Dutcher, Auk, V, 1888, p. 180). Without apparent increase these birds evidently manage to hold their own (Braislin, Auk, XVI, 1899, p. 191; Bildersee, Bird-Lore, VI, 1904, p. 204).

Fig. 14. Horned Lark.

Horned Lark; Shore Lark (*Otocoris alpestris*). A common winter resident along the coasts; less common or very rare in the Hudson Valley.

Prairie Horned Lark (*Otocoris alpestris praticola*). This small race of the Horned Lark is of rather rare occurrence in this vicinity. It is apparently extending its range eastward and there is one record of its having probably bred on Long Island (Dutcher, Auk, V, 1888, p. 180), where it also occurs during the winter.

FAMILY CORVIDÆ. CROWS, JAYS, MAGPIES, ETC.

***Blue Jay** (*Cyanocitta cristata*). A common resident, more numerous during the fall migration than at other times of the year.

The Canada Jay (*Perisoreus canadensis*), a northern species, is included by Lawrence in his "Catalogue of Birds" on the basis of an individual killed in July near Manhattanville, New York City. This specimen is now in the American Museum (No. 42,253). Its plumage is much worn and its toe-nails are abnormally long, facts which, taken in connection with the place and date of the bird's capture, induce me to believe that it had escaped from confinement.

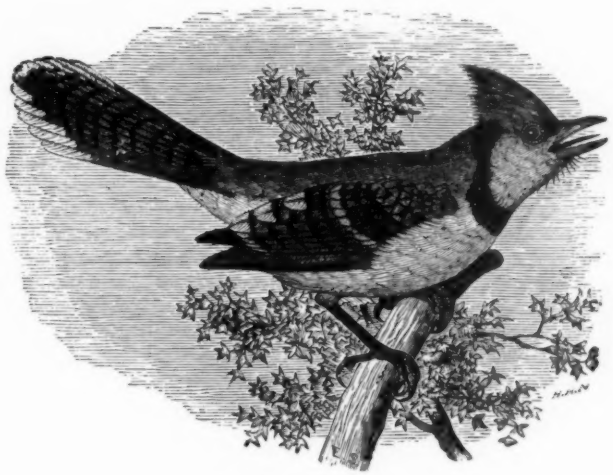


FIG. 15. BLUE JAY.

American Raven (*Corvus corax principalis*). Now of very rare occurrence in this vicinity. It is said to have been formerly common on the northern New Jersey coast (Lawrence), and is still uncommon along the southern coast of the State (Stone, Auk, XI, 1894, p. 137).

***American Crow** (*Corvus brachyrhynchos*). The Crow is here an abundant resident, but, as in the case of other species which are present the year round, it is probable that the individuals which summer with us pass the winter farther south, while our winter birds come to us from the north.

***Fish Crow** (*Corvus ossifragus*)). A common inhabitant of the Lower Hudson River Valley as far north as Sing Sing and occasionally reaches Highland Falls. In Connecticut it is of regular occurrence as far east as Stratford (Eames, Auk, VI, 1889, p. 338), while on Long Island its exact status appears to be unknown, though it is probably not uncommon. A few remain on the coast during the winter.

FAMILY STURNIDÆ. STARLINGS.

FIG. 16. STARLING, (SUMMER PLUMAGE).

***Starling** (*Sturnus vulgaris*). This Old World species has been introduced into this country on several occasions, but only the last importation appears to have been successful. The birds included in this lot were imported and released in Central Park, under the direction of Eugene Schieffelin of this city. They seem to have left the Park and to have established themselves in various places in the upper part of the city. A pair have bred for three successive seasons in the roof of this Museum. S. H. Chubb reports a pair nesting in a church at 122nd st. and Lenox avenue, and they also have nested at 100th st. and Riverside Drive. C. B. Isham tells me he has found their nest at Kingsbridge, New York City, and that he repeatedly observed a flock of fifty birds in the same locality during the late summer and fall of 1893 and 1894.

To the above statement, which stands as it appeared in the first (1894) edition of this List, may be added the further information, obtained from Mr. Schieffelin, that 80 Starlings were released on March 6, 1890, and 40 more on April 25, 1891. So far as I am aware the present (1906) boundary of the range of this species in America is marked by New Haven, Conn., on the east, Ossining, N. Y., on the north and Red Bank and Princeton, on the south. It is resident throughout the year, but gathers in flocks, sometimes containing several hundred birds, in the fall, when it wanders, about the country. Its economic status remains to be determined, but from the bird-

FIG. 17. STARLING, (WINTER PLUMAGE).

lover's point of view the Starling is a decided acquisition to the bird-life of our cities where its long-drawn, cheery whistle is in welcome contrast to the noisy chatter of House Sparrows.

FAMILY ICTERIDÆ. BLACKBIRDS, ORIOLES, ETC.

***Bobolink; Reedbird** (*Dolichonyx oryzivorus*). A locally distributed summer resident, arriving in early May and remaining until October. In August the males assume the Reedbird plumage and resort to our wild-rice marshes, where they are joined by large numbers from the north, which pause to feed on the wild-rice.

Twenty-five years ago the Bobolink was an abundant and generally distributed summer resident in this vicinity. Since that date it has rapidly decreased in numbers and is now entirely wanting in localities where it was formerly of regular occurrence.

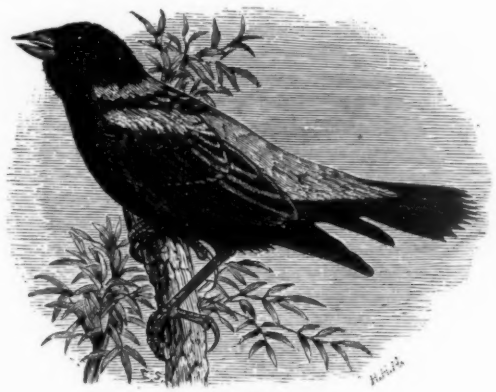


FIG. 18. BOBOLINK.

***Cowbird** (*Molothrus ater*). A common summer resident arriving late in March and remaining until November. It has been recorded as occurring in winter (Foster, Abst. Proc. Linn. Soc., No. 5, 1893, p. 2).

***Red-winged Blackbird** (*Agelaius phœniceus*). A common summer resident, abundant during the migrations when it occurs in large flocks. It is one of the first birds to reach us in the spring, frequently arriving before March 1, and it remains until December.

***Meadowlark** (*Sturnella magna*). A common summer resident, occuring in reduced numbers during the winter, when it is largely confined to the extensive marshes near the coast.

***Orchard Oriole** (*Icterus spurius*). A common summer resident, arriving early in May and remaining until September. (See group, third floor).

***Baltimore Oriole** (*Icterus galbula*). A somewhat more common summer resident than the preceding species. It arrives early in May and remains until September. (See group, third floor).

***Rusty Blackbird** (*Euphagus carolinus*). A common migrant, passing northward in March, returning in September and sometimes remaining during the winter.

FIG. 19. RED-WINGED BLACKBIRD.

***Purple Grackle: Crow Blackbird** (*Quiscalus quiscula*). A common summer resident of local distribution, nesting in colonies. It is one of our earliest migrants, arriving from the south with the Red-winged Blackbird about March 1. During the breeding season it is not seen far from the vicinity of its nest, but about July 1, when the young are on the wing, the birds gather in small flocks and wander over the country, pausing wherever they find an abundance of food. These flocks gradually coalesce and, in October and November, form enormous gatherings numbering thousands of birds.

***Bronzed Grackle** (*Quiscalus quiscula æneus*). A spring and fall migrant, sometimes not uncommon.

FAMILY FRINGILLIDÆ. FINCHES, SPARROWS, ETC.

Evening Grosbeak (*Hesperiphona vespertina*). During the winter and early spring of 1890 there was a phenomenal incursion of Evening Grosbeaks into the northern United States. The most southern record of their occurrence in the Atlantic States was at Summit, N. J., where, on March 6, Mr. W. O. Raymond observed a flock of eight birds (Orn. and Oöl., XV, 1890, p. 46). No specimens were collected, but Mr. Raymond watched the birds for some time at a distance of about eight feet, and he has since examined skins of the species in this Museum, thus confirming his identification.

***Pine Grosbeak** (*Pinicola enucleator leucura*). This species occurs here in the winter and then only at irregular intervals. It last appeared in numbers during the winter of 1903-4 when it was first observed at Englewood, N. J., Oct. 25 (Chapman, Bird-Lore, V, 1903, p. 199).

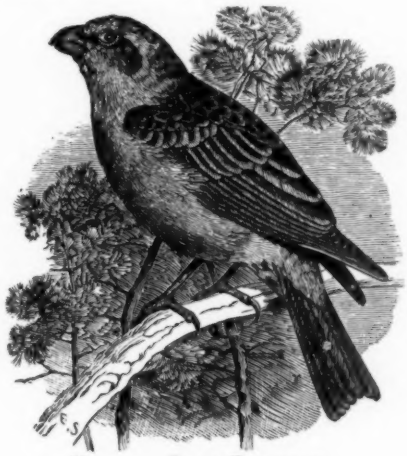


FIG. 20. PINE GROSBEAK.

***House Sparrow; English Sparrow** (*Passer domesticus*). From the report of the Division of Economic Ornithology of the Department of Agriculture (Washington, 1889), we learn that English Sparrows were first introduced into New York City in 1860, when twelve birds were released in Madison Square. In 1864 they were introduced in Central Park, and in 1866 two hundred were set free in Union Park. From these, and one or two other small additional importations of a few pairs each, have descended the countless numbers of Sparrows which to-day inhabit our streets and parks. In this latitude the English Sparrow has been known to rear six broods in a season, and their marvelous rate of increase is graphically given in a table in the report already mentioned, which shows that in ten years the progeny of a single pair might amount to 275,716,983,698.

With the discordant notes of these ubiquitous little pests constantly in our ears we may read with mixed humor and regret the following quotation from Lawrence's Catalogue of New York Birds (Ann. Lyc. Nat. Hist., VIII, 1866, p. 287): "I first observed them in the spring of 1865. A friend, conversant with our local native birds, informed me that he had seen a species in the shrubbery around the church on the corner of 5th avenue and 29th street, with which he was not familiar; on going to ascertain what they were, to my surprise I found them to be House Sparrows; they were domiciled in the ivy which grew on the walls of the church, and were quite gentle and fearless, some alighting in the street and dusting themselves quite near to where I stood."

***The European Chaffinch** (*Fringilla cælebs*), several pairs of which were released in Central Park under the direction of Eugene Schieffelin in 1890, is occasionally observed in Central Park where three individuals appear to exist at present. Whether, however, they are the descendants of the introduced birds or escaped cage-birds is unknown.

***The Greenfinch** (*Chloris chloris*) a European species was observed in Central Park, May 17, 1903, by C. G. Abbott.

***Purple Finch** (*Carpodacus purpureus*). In the vicinity of New York City the Purple Finch is a rather rare summer resident, a very common migrant and irregular winter resident. It is apparently increasing in numbers during the summer on Long Island (Dutcher, MS).

***American Crossbill** (*Loxia curvirostra minor*). A regular winter visitant. This erratic species has on several occasions been found breeding south of its regular breeding range. Such an instance occurred at Riverdale, N. Y., where it was found nesting on April 22, 1874 (Bicknell, Bull. N. O. C., IV, 1880, p. 7).

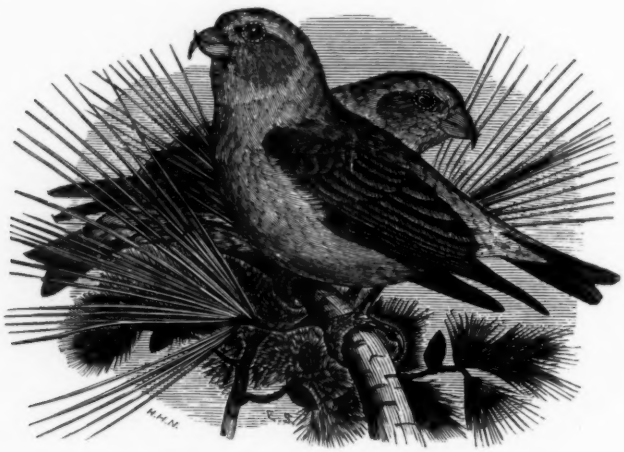


FIG. 21. AMERICAN CROSSBILL.

***White-winged Crossbill** (*Loxia leucoptera*). Of more rare and irregular occurrence in winter than the preceding species. This and the preceding species last occurred in numbers during the winter of 1899-1900 (Chapman Bird-Lore, II, 1900, pp. 25, 59).

Redpoll (*Acanthis linaria*). This species is here an irregular winter visitant, sometimes occurring in considerable numbers.

Greater Redpoll (*Acanthis linaria rostrata*). Two specimens taken at Sing Sing, N. Y., are the only individuals of this species which have been recorded from this vicinity (Fisher, Bull, N. O. C., VIII, 1883, p. 121).

The European Linnet (*Acanthis cannabina*) is recorded from Scarboro, N. Y. (G. H. Thayer, Auk, XVII, 1900, p. 389); but the large number of cage-birds of this species annually imported into this country makes it probable that the bird secured was an assisted immigrant.

FIG. 22. REDPOLL.

***American Goldfinch** (*Astragalinus tristis*). The Goldfinch, Yellowbird, or Thistlebird, is a common resident here.

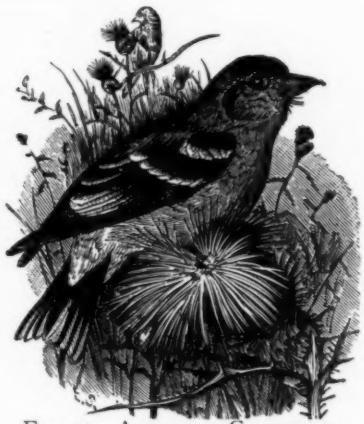


FIG. 23. AMERICAN GOLDFINCH.

***European Goldfinch** (*Carduelis carduelis*). A European species which was introduced into this country at Hoboken, N. J., in 1878. The following year it appeared in Central Park and has since spread over the upper parts of the city where in favorable localities it is not uncommon. It is with us throughout the year. (Adney, Auk, III. 1886, p. 409).

***Pine Siskin; Pine Finch** (*Spinus pinus*). A more or less common fall and winter visitant. On two occasions it has been found nesting in the Lower Hudson Valley, at Sing Sing, May 25, 1883 (Fisher, Bull. N. O. C., VIII, 1883), and at Cornwall-on-Hudson, May 12, 1887 (Allen, Auk, IV, 1887, p. 284). (See group, third floor).

***Snowflake; Snow Bunting** (*Passerina nivalis*). On Long Island this bird is an abundant winter resident on the sand-flats near the ocean (Dutcher, MS). In the Lower Hudson Valley it is much less common.

Lapland Longspur (*Calcarius lapponicus*). A rare winter resident; sometimes found with flocks of the preceding, but more frequently associated with Horned Larks.

Chestnut-collared Longspur (*Calcarius ornatus*). "Interior of North America, from the Saskatchewan Plains south to Texas." A specimen of this western species was taken at Long Island City, February 16, 1889 (Hendrickson, Auk, VI, 1889, p. 190).

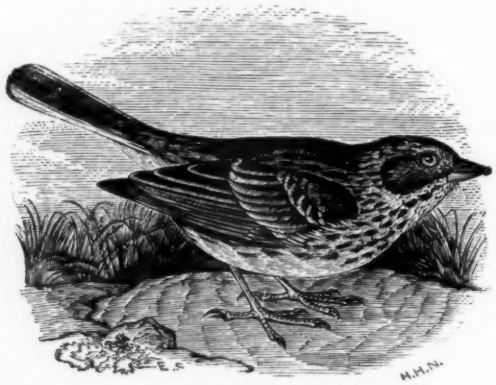


FIG. 24. VESPER SPARROW.

***Vesper Sparrow; Grass Finch: Bay-winged Bunting** (*Poœcetes gramineus*). A common summer resident, arriving about April 1, and remaining until the latter part of November.

Ipswich Sparrow (*Passerculus princeps*). A common winter resident, confined strictly to the immediate vicinity of the coasts, where it is found from the middle of October to the first of April (Dutcher, Auk, III, 1886, p. 441).

***Savanna Sparrow** (*Passerculus sandwichensis savanna*). This species is here a rare summer resident and abundant migrant, arriving about April 1 and departing in November and December. It breeds at Morristown, N. J. (Thurber) and is said to remain throughout the winter in the salt-marshes at Bridgeport, Conn. (Averill) Braislin, (Auk, XVI, 1899, p. 192) records it from Garden City, L. I., July 17, 1897, and Flatbush, L. I., Jan. 30, 1895.

Grasshopper Sparrow; **Yellow-winged Sparrow** (*Coturniculus savannarum passerinus*). Locally a common summer resident, arriving about May 1 and remaining until October.

Henslow Sparrow (*Ammodramus henslowi*). In this vicinity the Henslow sparrow has been found in but few localities where, however, it is apparently not uncommon. It is recorded as breeding at Morristown, N. J. (Thurber), and Boonton, Morris County, N. J. (Judd, Auk, XIV, 1897, p. 326). Summer resident in small numbers near Plainfield, N. J. (Miller, MS).

Sharp-tailed Sparrow (*Ammodramus caudacutus*). An abundant summer resident; with the exception of a colony on the Hudson at Piermont, confined entirely to the salt marshes of our coasts. (See group, third floor).

Nelson Sharp-tailed Sparrow (*Ammodramus nelsoni*). This species is known here only as a rather rare fall migrant in the Hudson River Valley, occurring from the latter part of September to the latter part of October.

Acadian Sharp-tailed Sparrow (*Ammodramus nelsoni subvirgatus*). Occurs with the preceding. (On the distribution of the Sharp-tailed Sparrows see Dwight, Auk, XIII, 1896, p. 275).

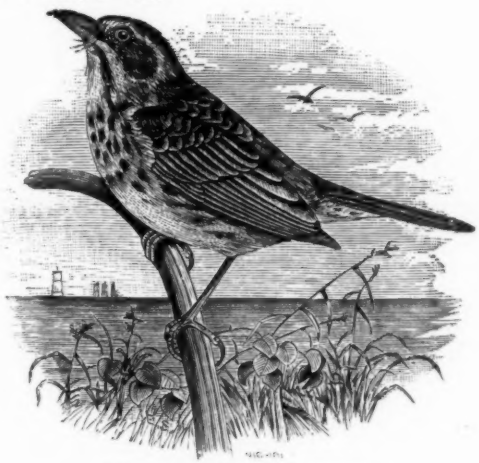


FIG. 25. SEASIDE SPARROW.

Seaside Sparrow (*Ammodramus maritimus*). This is an even more abundant summer resident than the Sharp-tailed Sparrow and, like it, is confined exclusively to our coasts, with the exception of a colony in the Piermont marshes. (See group, third floor).

Lark Sparrow (*Chondestes grammacus*). Interior of North America, eastward to Illinois, breeding from Texas to Manitoba; accidental on the Atlantic coast. There are two records for this vicinity, Sayville, L. I., August 20, 1879 (Earle, Bull: N. O. C., VI, 1881, p. 58) and Schraalenburg, N. J., November 26, 1885 (Chapman, Auk, III, 1886, p. 136).

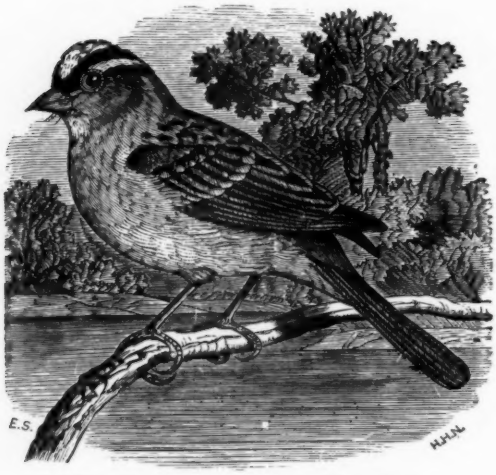


FIG. 26. WHITE-CROWNED SPARROW.

***White-crowned Sparrow** (*Zonotrichia leucophrys*). A rather rare migrant passing norhtward in May and returning in October. Braislin (Auk, XV, 1898, p. 59) records a specimen taken at Parkville, L. I., April 10, 1897.

***White-throated Sparrow** (*Zonotrichia albicollis*). An abundant migrant and locally common winter resident. It arrives from the north the latter part of September and remains with us until the middle of May.

***Tree Sparrow** (*Spizella monticola*). An abundant winter resident, arriving from the north about November 1 and remaining until April.

FIG. 27. WHITE-THROATED SPARROW.

***Chipping Sparrow; Chippy** (*Spizella socialis*). An abundant summer resident, arriving from the south about April 1 and remaining until November.

***Field Sparrow** (*Spizella pusilla*). An abundant summer resident, appearing in the spring about April 1 and not departing southward until November or even December. Of rare but regular occurrence in winter at Plainfield, N. J. (Miller, MS). (See group, third floor).

***Junco; Snowbird** (*Junco hyemalis*). The Junco is one of our most abundant winter birds. It comes to us from the north late in September and remains until May.

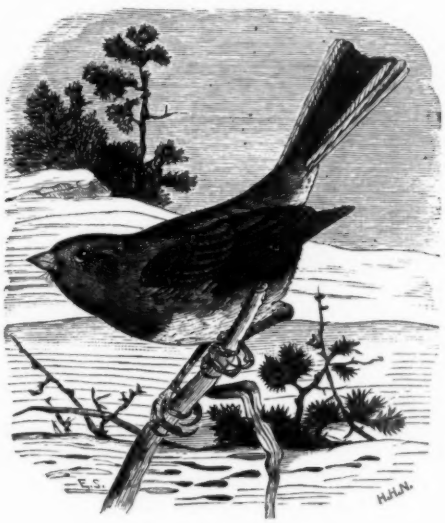


FIG. 28. JUNCO.

***Song Sparrow** (*Melospiza cinerea melodia*). An abundant summer and common winter resident. (See group, third floor).

Lincoln Sparrow (*Melospiza lincolni*). In this vicinity the Lincoln Sparrow is a rare but regular migrant, passing northward in May and southward in September and October.

***Swamp Sparrow** (*Melospiza georgiana*). An abundant summer resident, especially in the great marshes of the Hackensack, and a rare winter resident. (See group, third floor).

***Fox Sparrow** (*Passerella iliaca*). A common spring and fall migrant, passing northward in March and April and southward in October and November. There are several winter records for Princeton, N. J. (Scott, Bull, N. O. C., IV, 1879, p. 82).

***Towhee; Chewink** (*Pipilo erythrophthalmus*). An abundant summer resident, arriving about April 20, remaining until late October, and rarely into the winter. (See group, second floor).

***Cardinal** (*Cardinalis cardinalis*). The vicinity of New York City is about the northern limit of the Cardinal's range on the Atlantic coast. It is here a not uncommon resident of local distribution. In the Hudson Valley it is rarely found north of Hastings and Nyack; it is very rare eastward along the sound, and also on Long Island, but is common in Central Park, New York City, where I have seen nine individuals at one time. (See group, second floor).

***Rose-breasted Grosbeak** (*Zamelodia ludoviciana*). A common summer resident in the Hudson River Valley, arriving about May 1 and remaining until October. On Long Island it is a rare summer resident (Dutcher, MS). (See group, second floor).

***Blue Grosbeak** (*Guiraca cærulea*). There are several records of this southern bird's occurrence in this vicinity. It has been taken at Canarsie, L. I., May, 1843 (Dutcher, Auk, V, 1893, p. 276); Morristown, N. J. (Thurber, True Democratic Banner, newspaper, Nov. 17, 1889); Snake Hill, N. J. (Bicknell, Bull. N. O. C., III, 1878, p. 132), and Manhattan Island (DeKay, Birds, N. Y., p. 146).

***Indigo Bunting** (*Cyanospiza cyanea*). A common summer resident in this vicinity, arriving about May 1 and remaining until October 1.

Painted Bunting (*Cyanospiza ciris*). Breeds from the Gulf States northward to Kansas, southern Illinois and North Carolina. The capture of several specimens of this bird in this vicinity has been recorded (Bicknell, Bull. N. O. C., III, 1878, p. 132). It is possible that they were escaped cage-birds.

Dickcissel; Black-throated Bunting (*Spiza americana*). Eastern United States, mostly in the Mississippi Valley, breeding from Texas to Minnesota, and wintering in Central and South America. Breeds east of the Alleghanies now only rarely and locally. About forty years ago this bird was evidently a regular and not uncommon summer resident in this vicinity. (See Giraud, Chapman *apud* Galbraith, Auk, VIII, 1891, p. 395), but it occurs now only rarely and irregularly. Recent records are: Miller's Place, L. I., September 29 and October 10 (Dutcher, Auk, VI, 1889, p. 13) and Blithewood, L. I., August 25 (Johnson, Auk, VIII, 1891, p. 116). In July, 1904, W. De Witt Miller found a pair of this species breeding at Plainfield, N. J. (Auk, XXI, 1904, p. 487). J. Dwight, Jr., records the occurrence of a male Dickcissel at Kingston, N. Y., June 5, 1897 (Auk, XIV, 1897, p. 95).

Family TANAGRIDÆ. Tanagers.

Western Tanager (*Piranga ludoviciana*). Western North American north to British Columbia. The only record of the occurrence of this western species in this vicinity is that of a young male taken at Fort Montgomery, N. Y., December 21, 1881 (Mearns, Auk, VII, 1890, p. 55).

***Scarlet Tanager** (*Piranga erythromelas*). A common summer resident, arriving early in May and remaining until about October 1. (See group, third floor).

Summer Tanager (*Piranga rubra*). Eastern United States, breeding from Florida to southern New Jersey, wandering casually to Nova Scotia, and wintering in Central and South America. This species is of rare and irregular occurrence in this vicinity. (Hendrickson, Auk, I, 1885, p. 290; Dutcher, Auk, III, 1886, p. 412; XIX, 1902, p. 291; V, 1888, p. 181; Mearns, Auk, VII, 1890, p. 55; Braislin, Auk, XIX, 1902, p. 147).

FAMILY HIRUNDINIDÆ. SWALLOWS.

***Purple Martin** (*Progne subis*). This bird breeds in colonies and is of local distribution during the breeding season. It was formerly not uncommon in the vicinity of New York City, but the English Sparrows have taken possession of its nesting-houses, and at present it is found in but few places.

***Cliff Swallow; Eave Swallow** (*Petrochelidon lunifrons*). Like most of the Swallows it nests in colonies, and in this region generally places its mud nests beneath the projecting eaves of a barn. It appears to be less common during the summer than it was twenty or more years ago, but is a common migrant particularly in the fall. According to Mearns, it arrives as early as April 16. (See group, second floor).

***Barn Swallow** (*Hirundo erythrogaster*). A common summer resident and abundant fall migrant. It arrives about April 20 and remains until October 1.

***Tree Swallow** (*Iridoprocne bicolor*). Arrives from the south early in April. There are a few recorded instances of its breeding near New York City, but, generally speaking, it passes northward to more distant nesting grounds. July 1 the birds begin to return from the north, making their home in the marshes of the Hackensack, where, by July 20, they may be found in countless numbers. In the morning they leave their roosts in the "cat-tails" and fly out over the adjoining country to feed. At night they return. Their numbers increase until about September 1, then decrease, and by October 20 only a few stragglers remain.

***Bank Swallow** (*Riparia riparia*). A locally common summer resident, breeding in colonies where the conditions are favorable. It arrives about May 1 and remains until October. (See group, second floor).

Rough-winged Swallow (*Stelgidopteryx serripennis*). This Swallow is locally common in the Lower Hudson River Valley, at Riverdale (Bicknell), Hastings-on-the-Hudson (Rowley), Sing Sing (Fisher); at Highland Falls, which seems to be near the northern limit of its range in the Hudson Valley, it is a rare summer resident (Mearns). I have seen it near Ramapo, N. Y., and with J. Dwight, Jr., found a small colony breeding at Port Jervis, N. Y. It breeds near New Haven, Connecticut, in small numbers, and is rare as far north as Hartford (Sage). On Long Island it is of rare and irregular occurrence (Dutcher).

FAMILY AMPELIDÆ. WAXWINGS, ETC.

Bohemian Waxwing (*Ampelis garrulus*). This species occurs here only as an exceedingly rare and irregular winter visitant. There are no recent records.

***Cedar Waxwing; Cedarbird** (*Ampelis cedrorum*). A common summer resident; occurring irregularly in the winter.

FAMILY LANIIDÆ. SHRIKES.

***Northern Shrike; Butcherbird** (*Lanius borealis*). A more or less regular but rather uncommon winter resident.

FIG. 29. NORTHERN SHRIKE.

Migrant Shrike (*Lanius ludovicianus migrans*). The Migrant Shrike is found here is a rare but regular migrant during April, the latter part of August and in September, and, rarely, until December. It has been known to breed but once, at Sing Sing, N. Y., where a fledgeling was taken June 16, 1877 (Fisher, Bull. N. O. C., IV, 1879, p. 61).

FAMILY VIREONIDÆ. VIREOS.

***Red-eyed Vireo** (*Vireosylva olivacea*). This is one of our abundant summer residents. It arrives from the south about May 8 and remains until October. (See group, third floor).

Philadelphia Vireo (*Vireosylva philadelphica*). A very rare migrant.

***Warbling Vireo** (*Vireosylva gilva*). A common summer resident of local distribution, arriving early in May. (See group, third floor).

***Yellow-throated Vireo** (*Lanivireo flavifrons*). A common summer resident, arriving about May 7 and remaining until the latter part of September.

***Blue-headed Vireo** (*Lanivireo solitarius*). A not uncommon migrant, passing northward during the latter part of April and first part of May, and returning late in September.

***White-eyed Vireo** (*Vireo noveboracensis*). A common summer resident about New York City. It reaches us from the south about May 7, and remains until early October. (See group, third floor).

FAMILY MNIOTILTIDÆ. WOOD-WARBLERS.

***Black and White Warbler** (*Mniotilta varia*). A rather common summer resident and common migrant. It appears the latter part of April and is with us until the first part of October. (See group, third floor).

Prothonotary Warbler (*Protonotaria citrea*). Eastern North America, breeding from the Gulf States to southern Illinois and Virginia, and wintering in the tropics. Its occurrence near New York City is accidental; there are but two records, viz., a male shot at Jamaica, L. I. (Dutcher, Auk, X, 1893, p. 276), and a male seen by E. P. Bicknell near the northern limit of New York City, June 2, 1895 (Auk, XII, 1895, 306). Dutcher has recorded a specimen which struck the Montauk Point Lighthouse, August 27, 1886 (Auk, V, 1888, p. 182).

***Worm-eating Warbler** (*Helmitheros vermivorus*). This bird is one of our rarer summer residents, though it is not uncommon some years in the early fall migration. In the Hudson River Valley it is regularly found as far north as Highland Falls (Mearns) and occurs at Fishkill (Stearns). In Connecticut it breeds at Saybrook and New Haven, but is not common, and at Portland it has been taken only twice (Sage). On Long Island it is considered exceedingly rare (Dutcher).

***Blue-winged Warbler** (*Helminthophila pinus*). This species arrives early in May and remains until September 1. It is a common summer resident of the Lower Hudson Valley, at least as far north as Highland Falls (Mearns). In Connecticut it is common at Saybrook and New Haven, but is rare as far north as Portland, where but one or two pairs breed each season (Sage). On Long Island it is known to breed only along the north shore, where it is probably not uncommon in favorable localities. Mrs. E. G. Britton records the occurrence of an individual of this species in Bronx Park in January, 1900 (Bird-Lore, II, 1900, p. 26; see also Noble, Bird-Lore, II, 1900, p. 59). (See group, third floor).

Brewster's Warbler (*Helminthophila leucobronchialis*) with us is a rare but regular summer resident in northern New Jersey, the Lower Hudson Valley and southern Connecticut, but has been taken only once on Long Island (Howell). Specimens have been recorded from Morristown (Thurber), Maplewood (Riker), and Englewood, N. J., where it has been found nesting (Chapman, Auk, IV, 1887, p. 348; IX, 1892, p. 302). Farther north in the Hudson Valley it has been found at Nyack (Bicknell), and at Sing Sing five specimens have been secured (Fisher, Bull. N. O. C., IV, 1879, p. 234; VI, 1881, p. 245; Auk, II, 1885, p. 378) In the Lower Connecticut Valley this bird seems to be more frequent than in any other part of its range. It has been found at Saybrook, Seymour, New Haven, Portland and other localities, the principal records being as follows: Eames, Auk, V, 1888, p. 427; VI, 1889, p. 305; Bishop, Auk, VI, 1889, p. 192; Sage, Auk, X, 1893, p. 208. Probably not more than one-third of all the specimens recorded are typical *leucobronchialis*, the remaining two-thirds presenting every stage of intergradation between this bird and typical *H. pinus*.

Lawrence's Warbler (*Helminthophila lawrencei*) is a much rarer bird than the preceding. There are records for only six specimens from the immediate vicinity of New York City, viz. Chatham, N. J. (Herrick), Hoboken, N. J. (Lawrence), Rye, N. Y. (Vorhees, Auk, V, 1888, p. 427), Greenwich, Conn. (Vorhees, Auk, XI, 1894, p. 259), Cold Spring Harbor, L. I. (Braislin, Auk, XX, 1903, p. 53), and New York Zoological Park, where a male was found breeding with a female *pinus* (Bildersee, Bird Lore, VI, 1904, p. 131; Beebe, Auk, XXI, 1904, p. 387).

The status of both Brewster's and Lawrence's Warblers is still unsettled. They are generally considered to be hybrids between *H. pinus* and *H. chrysoptera*, and it has also been suggested that dichromatism may play a part in producing their coloration. Their relationship will be found discussed under the following references: Brewster, Bull. N. O. C., VI, 1881, p. 218; Ridgway, Auk, II, 1885, p. 359; Manual N. A. Birds, 1887, p. 486; Birds of North and Middle America, II, 1902, pp. 452, 453; Thayer, Auk, XIX, 1902, p. 401; Bishop, Auk, XXII, 1905, p. 21).

***Golden-winged Warbler** (*Helminthophila chrysoptera*). In the immediate vicinity of New York City, this bird occurs as a rather rare spring migrant, but in the early southward migration, in August, it is sometimes not uncommon. It has been found nesting at Nyack, N. Y. (Brownell) and probably breeds regularly from that point northward.

***Nashville Warbler** (*Helminthophila rubricapilla*). This species is here a rather common migrant and a rare summer resident as far south as Highland Falls. It arrives about May 10 and returns on its southward journey during late August, the last migrants being seen about September 25. A breeding female was taken by Chapman at Englewood, N. J., June 16, 1887, (Auk, VI, 1889, p. 304).

Orange-crowned Warbler (*Helminthophila celata*). This Warbler occurs here as an exceedingly rare migrant. There are records of only six specimens, all but one of which occurred in the fall. (Howell, Auk, X, 1893, p. 91).

***Tennessee Warbler** (*Helminthophila peregrina*). With us this bird is a rather rare spring migrant but is sometimes not uncommon in the fall. It passes northward early in May and returns on its southward journey in September.

***Northern Parula Warbler** (*Compsothlypis americana usneæ*). The Parula Warbler is here a more or less abundant migrant and local summer resident. It arrives from the south about May 7 and the last individuals are observed in early October.

***Cape May Warbler** (*Dendroica tigrina*). This is one of our rarest spring migrants, passing northward about May 15. In the fall migration immature birds are sometimes not uncommon.

***Yellow Warbler** (*Dendroica æstiva*). A common summer resident. It arrives from the south about May 5 and remains until September. (See group, third floor).

***Black-throated Blue Warbler** (*Dendroica cærulescens*). A common migrant, passing northward early in May and returning in September.

FIG. 30. MYRTLE WARBLER.

***Myrtle Warbler; Yellow-rumped Warbler;** (*Dendroica coronata*). An abundant migrant in our vicinity and in favorable localities where bayberries are abundant, it passes the whole winter. Migrants begin to arrive in early April, and the southward migration takes place during the latter part of September and October.

***Magnolia Warbler** (*Dendroica maculosa*). In this vicinity it is a common migrant, passing northward early in May and returning late in August and in September.

Cerulean Warbler (*Dendroica cerulea*). Breeds in the Mississippi Valley as far north as Minnesota, and eastward as far as Cayuga Co., N. Y., and winters in the tropics. Its occurrence here is accidental, and there are but three records of its capture, one of a male taken in Kings County, L. I., (Dutcher, Auk, X, 1893, p. 277), of a male taken at Highland Falls, May 17, 1875 (Mearns, Birds Hudson Highlands, p. 154), and one of a specimen taken at Boonton, Morris Co., N. J., in September, 1887 (Judd, Auk, XIV, 1897, p. 326).

***Chestnut-sided Warbler** (*Dendroica pensylvanica*). With us it is a common migrant, and, in recent years, has become a locally common summer resident. It arrives early in May, and the return migration occurs between August 10 and October 1.

***Bay-breasted Warbler** (*Dendroica castanea*). As a rule the Bay-breasted is one of our rarest transient Warblers but during some seasons it is found in numbers. It passes northward about the middle of May and returns in September.

FIG. 31. BLACKPOLL WARBLER.

***Blackpoll Warbler** (*Dendroica striata.*) The Blackpoll is one of our most abundant migrants and is the last of the transient Warblers to pass northward in the spring. It arrives from the south about May 7 and returns on its southern journey in September.

***Blackburnian Warbler** (*Dendroica. blackburniæ*). A rather uncommon spring migrant, passing northward during the first of May, but is not uncommon some year during its return migration in September.

Yellow-throated Warbler (*Dendroica domina*). Southern United States, breeding as far north as Virginia and wintering from Florida southward. There is but one record of the occurrence of this southern species near New

York City. It is based on the capture of a male in Kings County, L. I. (Dutcher, Auk, X, 1893, p. 277).

***Black-throated Green Warbler** (*Dendroica virens*). In the immediate vicinity of New York City this bird is found chiefly as a migrant, arriving from the south late in April and returning about the middle of August. It is known to breed at Highland Falls, N. Y. (Mearns), Bridgeport, Conn. (Averill), Millers Place, L. I. (Dutcher, MS), and at Demarest, N. J., where on June 5, 1904. B. S. Bowdish found a nest built in a skunk cabbage about fourteen inches from the ground (Auk, XXIII, 1906, p. 17).

***Pine Warbler** (*Dendroica vigorsi*). This Warbler is of local distribution in this vicinity. In northern New Jersey, the Lower Hudson Valley and southern Connecticut it occurs only as a rare migrant, but on certain parts of Long Island, where the scrub pines afford it congenial surroundings, it is not uncommon and breeds.

Palm Warbler (*Dendroica palmarum*). This species is of rather rare but regular occurrence here. One specimen was taken at Sing Sing, N. Y., April 29, 1882 (Fisher, Bull. N. O. C., VII, 1882, p. 249), two at Riverdale, N. Y., in the spring of 1877 (Bicknell, Bull. N. O. C., V. 1880, p. 182), and one struck the Fire Island Lighthouse, September 23, 1887 (Dutcher, Auk, V, 1888, p. 182). Braislin (Auk, XIX, 1902, p. 149) records it as "common" near Brooklyn between September 25 and October 7, 1895, and Miller (Bird-Lore, V, 1903, p. 199) states that it was rather common near Plainfield, N. J., between September 22 and October 4, 1903.

***Yellow Palm Warbler**; **Yellow Redpoll** (*Dendroica palmarum hypochrysea*). A common migrant arriving from the south about April 10, and returning late in September and in October.

***Prairie Warbler** (*Dendroica discolor*). The distribution of the Prairie Warbler in this vicinity is much like that of the Pine Warbler. It is rare in northern New Jersey and the Lower Hudson Valley, where however, it has been found breeding once (Highland Falls, Mearns), but is not uncommon on some parts of Long Island. At Bridgeport, Conn., it is a common migrant and may breed (Averill). (See group, third floor).

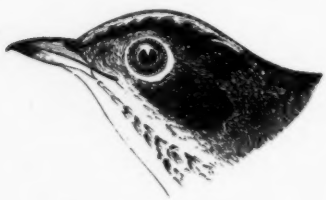


FIG. 32. OVENBIRD.

***Ovenbird** (*Seiurus aurocapillus*). The Ovenbird is one of our abundant summer residents, arriving about May 1 and remaining until the middle of October. (See group, third floor).

Northern Water-thrush (*Seiurus noveboracensis*). A common migrant, passing northward during May and returning about September 1. Cherrie (Auk, XIX, 1902, p. 210) records the probable breeding of this species at Cold Spring Harbor, L. I.

LOUISIANA WATER THRUSH
Group, Hall No. 308

Grinnell's Water-thrush (*Seiurus noveboracensis notabilis*). Western North America; eastward during the migrations to Virginia and South Atlantic States. This western species has been recorded only from Raritan, N. J., May 30, 1889 (Southwick, Auk, IX, 1892, p. 303), and Princeton, N. J. Sept. 10, 1879 (Babson).

Louisiana Water-thrush (*Seiurus motacilla*). It is a common summer resident in the lower Hudson Valley, where it has been found as far north as Lake George (Fisher), and is not uncommon in the lower Connecticut Valley. There are two records for Massachusetts and two for Rhode Island. On Long Island it is very rare (Dutcher). (See group, third floor).

FIG. 33. KENTUCKY WARBLER.

***Kentucky Warbler** (*Opornis formosa*). This is a common summer resident on the banks of the Lower Hudson River and has been recorded from Fort Lee and Riverdale (Bicknell), Englewood (Chapman), and Sing Sing (Fisher), beyond which point it is as yet unknown. In Connecticut there are but three records, viz: at Suffield where a male was taken August 16, 1876 (Merriam), at Greenwich, where a pair and a fledgeling were seen and the male taken July 10, 1892 (Vorhees, Auk, X, 1893, p. 86) and at West Stratford, where a male was shot May, 30, 1888 (Lucas, Orn. and Ool., XIV, 1889, p. 62). On Long Island it is very rare, there being but one recent record if its occurrence (Dutcher). It is wholly absent in the vicinity of Plainfield, N. J., (Miller) and at Princeton (Babson).

Connecticut Warbler (*Oporornis agilis*). This species is an exceedingly rare spring migrant east of the Alleghanies, and I know of no record of its occurrence here at that season; in the fall, however, it is not uncommon, and sometimes is abundant, arriving as early as September 3 and remaining until the latter part of the month.

***Mourning Warbler** (*Oporornis philadelphia*). This species is one of our rare Warblers; it passes northward during the latter half of May.

***Northern Yellowthroat** (*Geothlypis trichas brachidactyla*). One of our most abundant summer residents. It arrives about May 5 and remains until October. (See group, third floor.)

Yellow-breasted Chat (*Icteria virens*). A common summer resident, arriving about May 5 and remaining until September.

***Hooded Warbler** (*Wilsonia mitrata*). The Hooded Warbler is here near the northern limit of its range. At Englewood, N. J., it is an abundant summer resident, arriving about May 5 and remaining until the middle of September. At Riverdale, N. J., it is locally common (Bicknell), at Sing Sing it is not common (Fisher), but at Highland Falls it is "very common" (Mearns). It has been taken at Fishkill, the most northern point in the

Hudson River Valley from which it has been recorded. In Connecticut it is common at Saybrook and New Haven, but is rare north of these points (Sage). In Massachusetts it has been found only twice. On Long Island it is rare. At Plainfield and Princeton, N. J., it is a rare migrant.

***Wilson's Warbler** (*Wilsonia pusilla*). This bird is here a rather uncommon spring migrant, passing northward from the 12th to the 30th of May, but is not uncommon at times during its return journey, which takes place between August 15 and September 15.

***Canadian Warbler** (*Wilsonia canadensis*). A common migrant, passing north from May 10 to June 10 and returning between August 5 and September 10.

***American Redstart** (*Steophaga ruticilla*). A common summer resident of our woodland; it arrives about May 5 and remains until early October. (See group, third floor.)

Family MOTACILLIDÆ. Wagtails.

***American Pipit; Titlark** (*Anthus pensilvanicus*). The Titlark is a generally common, and, along our coasts, an abundant migrant. It travels northward from the latter part of March to early May and returns on its southern journey during October and November.

Family MIMIDÆ. Mockingbirds, Thrashers, etc.

***Mockingbird** (*Mimus polyglottos*). Breeds from the Bahamas and Mexico to southern Illinois and northern New Jersey, rarely to Massachusetts, and winters from North Carolina southward. The Mockingbird is of rare occurrence in this vicinity and doubtless many of the specimens reported are escaped cage-birds. It has, however, been found breeding at several localities, and at Tenafiy, N. J., a pair returned to the same locality for several years (Auk, VI, 1889, p. 305). On several occasions Mockingbirds have been found here during the winter and have shown their ability to withstand our coldest weather as long as they can obtain an abundance of food.

***Catbird** (*Galeoscoptes carolinensis*). An abundant summer resident, arriving about May 3 and remaining until October 20. (See group, third floor.)

***Brown Thrasher** (*Toxostoma rufum*). A common summer resident, appearing about April 20 and remaining until the middle of October and occasionally later. (See group, second floor.)

Family TROGLODYTIDÆ. Wrens.

***Carolina Wren** (*Thryothorus ludovicianus*). Eastern United States, breeding from the Gulf States to southern Iowa, northern Illinois, and southern Connecticut; resident, except at the northern limit of its range. Generally speaking the Carolina Wren is a rather rare bird in this vicinity but on the

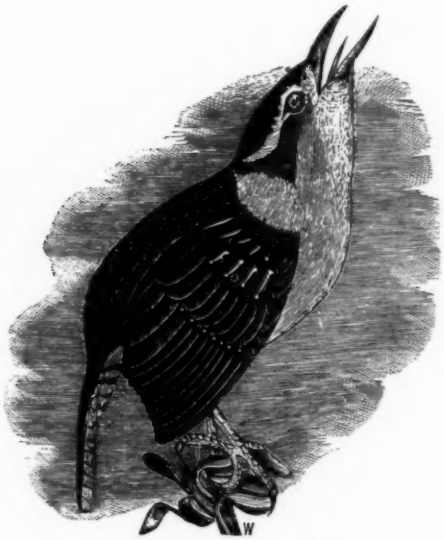


FIG. 34. CAROLINA WREN.

eastern slope of the Palisades, as far north as Piermont, N. Y., it is common during the summer (Chapman, Auk, X, 1893, p. 87). It has been found on Long Island in the winter (Dutcher, MS). Since the above was written, in 1894, this species appears to have increased in numbers, locally.

***House Wren** (*Troglodytes aedon*). This common and familiar species comes to us about May 1 and remains until October.

***Winter Wren** (*Olbiorchilus hiemalis*). Just before the House Wren leaves us, or about October 1, the Winter Wren comes from the north and is not uncommon until the House Wren returns in May.

Short-billed Marsh Wren (*Cistothorus stellaris*). This species is here a common summer resident of very local distribution.

FIG. 35. WINTER WREN.

Long-billed Marsh Wren (*Telmatodytes palustris*). This abundant inhabitant of our reedy marshes arrives in May and remains until October or November.

FAMILY CERTHIIDÆ. CREEPERS.

***Brown Creeper** (*Certhia familiaris americana*). The Creeper is here a rather common winter resident, arriving from the north about October 1 and remaining until April.

FAMILY SITTIDÆ. NUTHATCHES.

***White-breasted Nuthatch** (*Sitta carolinensis*). A common permanent resident.

***Red-breasted Nuthatch** (*Sitta canadensis*). This bird is sometimes common from the later part of August to October and occasionally remains during the winter.

FIG. 36. RED-BREASTED NUTHATCH.

FAMILY PARIDÆ. TITMICE.

Tufted Titmouse (*Bæolophus bicolor*). This bird is resident and breeds as far north as Orange, N. J. (Riker), and Staten Island, N. Y. (Hollick). Beyond these points it occurs regularly but rarely. It is observed yearly in April at Englewood, N. J. (Chapman). There are few records for Connecticut, and although Giraud leads us to believe it was not uncommon and bred on Long Island when he wrote, it is now very rare there. (Braislin, Auk, XIX, p. 148.)

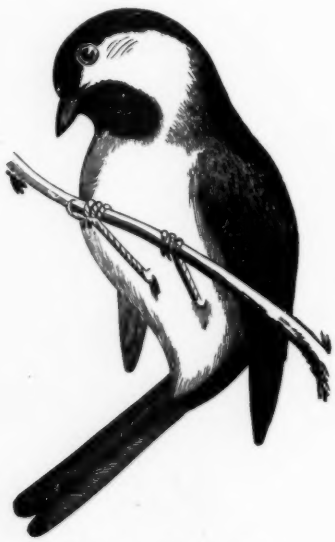


FIG. 37. CHICKADEE.

***Chickadee** (*Penthestes atricapillus*). The Chickadee is here a common permanent resident, but is more numerous during its migration in October than at other times.

Carolina Chickadee (*Penthestes carolinensis*). "Southeastern United States, north to New Jersey and Illinois." This species reaches the southern limit of our district at Princeton, N. J., where it is a not uncommon resident, while *P. atricapillus* is found there only in the winter (Babson).

FAMILY SYLVIIDÆ. KINGLETS AND GNATCATCHERS.

***Golden-crowned Kinglet** (*Regulus satrapa*). A not common winter resident in favorable localities; it arrives from the north about October 1 and remains until May.

FIG. 38. GOLDEN-CROWNED KINGLET.

***Ruby-crowned Kinglet** (*Regulus calendula*). A common spring, and an abundant fall migrant, arriving from the south about the middle of April and returning late in September.

***Blue-gray Gnatcatcher** (*Polioptila cærulea*). Eastern United States, breeding from the Gulf States to northern Illinois, southern Ontario and northern New Jersey, and wandering rarely to Minnesota and Maine, winters from Florida southward. There are numerous records of capture of this southern species in the vicinity of New York City, but it is not known to occur regularly nearer than Princeton, N. J., where it arrives from "April 25 to May 1" (Scott, The Country, I. 1878, p. 354).

Townsend's Solitaire (*Myadestes townsendi*). A male of this species was taken at King's Park, L. I., November 25, 1905, by J. A. Weber (Dwight, Auk, XXIII, 1906, p. 105).

***Wood Thrush** (*Hylocichla mustelina*). The Wood Thrush is an abundant summer resident, arriving about May 1 and remaining until early October. It

may rightly claim to rank as the most gifted of our summer songsters. (See group, second floor.)

Wilson's Thrush (*Hylocichla fuscescens*). Wilson's Thrush, or the Veery, as it is better called, is a common summer resident, arriving about May 1 and remaining until September. (See group, third floor.)

Gray-cheeked Thrush (*Hylocichla aliciæ*). A common migrant, passing northward in May and southward in September and October.

Bicknell's Thrush (*Hylocichla bicknelli*). So far as records go, this is a rather rare migrant, occurring in May and September and October, but careful search will doubtless show it to be more common than is generally supposed.

Olive-backed Thrush (*Hylocichla ustulata swainsoni*). The Olive-backed Thrush is a common migrant in this vicinity. It passes northward in May and southward in September and October.

Hermit Thrush (*Hylocichla guttata pallasi.*) An abundant migrant and occasionally is found in small numbers during the winter. In the spring it passes northward between April 10 and May 1; its fall migration takes place between October 1 and November 1. There is a record of its probable breeding at Lake Ronkonkoma, L. I. (Dutcher, Auk, III, 1886, p. 443).

American Robin (*Merula migratoria*). The Robin is our most abundant summer resident, and in favorable localities a few may be found in the winter Migrants begin to arrive toward the last of February, and the species is abundant until December. (See group, third floor.)

Varied Thrush (*Ixoreus nævius subsp. ?*). The local status of this Pacific coast bird appears to be well stated in Coues' "Birds of the Colorado Valley," where George N. Lawrence is quoted as follows:

"Besides Cabot's New Jersey example, two others have been procured near New York City—one at Islip, Long Island, shot in the fall, in company with Robins, and now in the possession of the person who secured it, the other at Hoboken, New Jersey. Both were received in the flesh by Mr. J. Akhurst, to be mounted; the Hoboken one was subsequently destroyed by fire in the taxidermist's workshop. All the specimen's in my own cabinet came from the Pacific side."

The Cabot specimen mentioned above by Lawrence is possibly the one referred to by Turnbull (Birds of East. Penn. and N. J.), but without data.

Wheatear (*Saxicola œnanthe leucorhoa*). This northern species is of accidental occurrence in this vicinity; it has been twice recorded from Long Island (Lawrence, Ann. Lyc. Nat. Hist., VIII, 1886, p. 282; Dutcher, Auk, X, 1893, p. 277.)

Bluebird (*Sialia sialis*). The Bluebird is here a common summer resident, an abundant migrant, and not infrequent winter resident. Migrants begin to arrive from the south early in March.

THE AMERICAN ROBIN
Group, Hall No. 308

List of
Principal Papers Relating to the Birds of the Vicinity of New York City.

1844. De Kay, J. E. Zoology of New York, or the New York Fauna; comprising detailed descriptions of all the animals hitherto observed within the State of New York, with brief notices of those occasionally found near its borders, and accompanied by appropriate illustrations. Part II, Birds. Albany: 1 Vol., 4 to, pp. xii, 380, pll. col'd, 141.

Treats of 308 species. "Though still constantly quoted—and properly to be referred to—it has ceased to be regarded as an authority" (Coues).

1844. Giraud, J. P., Jr. The Birds of Long Island....New York: published by Wiley & Putnam, 161 Broadway....1 Vol., 8vo., pp. i—xxiv, 1—397.

Treats of 286 species, giving descriptions and extended annotations. Only 200 copies of this work are supposed to have been placed in circulation.

1866. Lawrence, G. N. Catalogue of Birds observed on New York, Long, and Staten Island and the adjacent parts of New Jersey. Ann. Lyc. Nat. Hist., New York, VIII, pp. 279—300.

A partly annotated list of 327 species.

1868. Abbott, C. C. Catalogue of Vertebrate Animals of New Jersey. Cooke's Geology of New Jersey. Appendix E. Birds, pp. 761—798.

An annotated list of 301 species, abounding in errors and only to be used with discrimination.

1869. Turnbull, W. P. The Birds of East Pennsylvania and New Jersey. Glasgow, Printed for Private Circulation.

1876. Bicknell, E. P. Field Notes at Riverdale. Forest and Stream, VI, p. 233; also pp. 133, 148, 386, 402.

Winter and spring notes on numerous species.

1876. Stevens, W. G. Bird arrivals on the Harlem. Forest and Stream, VI, p. 215.

Notes on 40 species.

1877. Merriam, C. Hart. A Review of the Birds of Connecticut with Remarks on Their Habits. Trans. Conn. Acad., IV, pp. 1—165.

A fully annotated list of 292 species.

1877. Stevens, W. B. [Arrivals of Birds at West Farms, N. Y., during the springs of 1874, 1875, and 1876.] Forest and Stream, VIII, p. 400.

Dates of arrival of 32 species.

1878. Benner, F. Bird Notes from Long Island. Forest and Stream, X, pp. 174, 215.

Notes from Astoria on a number of species.

1878. BICKNELL, E. P. Evidences of the Carolinian Fauna in the Lower Hudson Valley, Principally from Observations taken at Riverdale, N. Y. Bull. Nutt. Orn. Club, III, pp. 128—132.

On 13 Carolinian species. (See also Allen, J. A. *ibid.*, pp. 149, 150.)

1878. HUYLER, A. I. Winter Birds on the Hackensack. The Country, I, p. 149.

1878. LAWRENCE, N. T. Notes on several rare Birds taken on Long Island. Forest and Stream, X, p. 235.

Notes on 24 species.

1878. WINKLE, N. [Spring Birds at Summit, N. J.] The Country, II, p. 57.

1879. COUES, G. H. List of Birds observed in the Naval Hospital Grounds, in Brooklyn City. Bull. Nutt. Orn. Club, IV, pp. 31—33.

Brief notes on 60 species.

1879. HERRICK, H. Notes on some Birds of Chatham, N. J. Forest and Stream, XII, p. 165.

1879—80. MEARNS, E. A. A list of the Birds of the Hudson Highlands. Bull, Essex (Mass.) Inst., X, pp. 166—179; XI, 43—52, 154—168, 189—204; XII, 11—25, 109—128; XIII, 75—93.

One of the best and most complete of our local papers, treating fully of 209 species. (See also an Addendum adding 5 species in The Auk, VII, 1890, pp. 55, 56; also reviews in Bull. Nutt. Orn. Club, V, 1880, p. 175; VI, 1881, p. 172.)

1879. NICHOLS, G. N. Migration of some Warblers through Summit, N. J., during the last spring. Forest and Stream, XII, p. 464.

Notes on 18 species.

1879. ROOSEVELT, T. Notes on some of the Birds of Oyster Bay, Long Island. One-page leaflet, published by the author.

Notes on 17 species.

1879. SCOTT, W. E. D. Late Fall and Winter Notes on some Birds Observed in the Vicinity of Princeton, N. J., 1878—79. Bull. Nutt. Orn. Club, IV, pp. 81—85.

Notes on 35 species.

1879—85. FISHER, A. K. Occurrence of Several rare Birds near Sing Sing, N. Y. Bull. Nutt. Orn. Club, IV. pp. 61, 62.

Notes on 5 species. For additional notes by the same author on the rarer birds of Sing Sing, see *ibid.*, III, 1878, pp. 191, 192; IV, 1879, p. 234; VI, 1881, p. 245; VII, 1882, pp. 249, 251; VIII, 1883, pp. 121, 180; Auk, II, 1885, pp. 306, 378.

1880. LAWRENCE, R. Notes on some of the Rarer Birds of Long Island, N. Y. Bull. Nutt. Orn. Club, V, pp. 116, 117.

Notes on 8 species.

1880. STEARNS, W. A. List of Birds of Fishkill-on-Hudson, N. Y. 8vo., pp. 16. Published by the author.

A briefly annotated list of 138 species. (Review in Bull. Nutt, Orn. Club, V, 1880, p. 233.)

1881. BERIER, DE L. Notes on a few Birds Observed at Fort Hamilton, Long Island, N. Y. Bull. Nutt. Orn. Club, VI, pp. 11—13.

Brief notes on 10 species.

1881. BERIER, DE L. Notes on Birds Rare or Accidental on Long Island, N. Y. Bull. Nutt. Orn. Club, VI, pp. 125, 126.

Notes on 11 species.

1882. TOWNSEND, A. L. [Arrival of Birds in spring at Bay Ridge, L. I.] Forest and Stream, XVIII, pp. 305, 346, see also p. 427.

Notes on some 30 species.

1884. BARREL, H. F. Arrivals of Birds in [New Providence], N. J., in 1883. Orn. and Oöl, IX, p. 45.

A chronological list of 73 species.

1884. DUTCHER, W. Bird Notes from Long Island, N. Y. Auk, I, pp. 174—179.

On birds striking the Fire Island and Shinnecock Bay Lighthouses.

1884—5. BICKNELL, E. P. A Study of the Singing of our Birds. Auk, I, pp. 60—71, 126—140, 209—218, 322—332; II, 1885, pp. 144—154, 249—262.

On the song-seasons of about 100 species from observations made principally at Riverdale, N. Y.

1884—89. DUTCHER, W. Bird Notes from Long Island. Auk, I, pp. 31—35; II, 1885, pp. 36—39; III, 1886, pp. 432—444; V, 1888, pp. 169—183; VI, 1889, pp. 131—139; X, 1893, pp. 265, 266.

A series of papers on the rarer birds of Long Island, treating of, in all, 71 species.

1885. BARRELL, H. F. Birds of the Upper Passaic Valley, New Jersey. Orn. and Oöl., X, pp. 21—23, 42, 43.

A briefly annotated list of 149 species.

1885. HOLLICK, A. Preliminary List of the Birds known to breed on Staten Island. Proc. Nat. Sci. Assoc., Staten Island. Extra No. 4, December.

A nominal list of 67 species.

1885. LAWRENCE, N. T. Long Island, N. Y., Bird Notes. Auk, II, pp. 272—274.

Notes on 18 species.

1886. PAINE, A. G., JR. Dates of the Arrival of Migratory Birds in the spring of 1886, Central Park, New York City. Orn. and Oöl, XI, pp. 109, 125.

A chronological list of 64 species.

1886. WOODRUFF, L. B. AND PAINE, A. G., JR. Birds of Central Park, New York [City]. A preliminary List. Forest and Stream, XXVI, pp. 386, 387; see also p. 487.

A briefly annotated list of 121 species.

1887. THURBER, E. C. A List of Birds of Morris County, New Jersey. True Democratic Banner (newspaper), Morristown, N. J., Nov. 10, 17, 24.

An annotated list of 205 species. (Review in Auk, V, 1888, pp. 421, 422.)

1888. HALES, H. Bird Notes of Northern New Jersey. Orn. and Oöl., XIII, p. 158.

Notes on the spring migrations at Ridgewood, N. J.

1889. CHAPMAN, F. M. Notes on Birds Observed in the Vicinity of Englewood, N. J. Auk, VI, pp. 302—305.

Notes on 19 species.

1889. CHAPMAN, F. M. Notes on the Mniotiltidæ of Englewood, N. J., Abst. Proc. Linnæan Society [No. 1], for the official year 1888—89, p. 3. (See also Auk, VI, 1889, p. 198.)

A synopsis mentioning 8 species.

1889. CHAPMAN, F. M. Remarks on the Northern Limit of the Carolinian Fauna on the Atlantic Coast. Abst. Proc. Linnæan Society [No. 1], for the official year 1888—89, p. 4. (See also Auk, VI, 1888, p. 199.)

1889. DUTCHER, W. Long Island Birds. Forest and Stream, XXX, p. 444.

A call for information on the occurrence of 52 species.

1889. FOSTER, L. S. Some Nyack Birds. Nyack Evening Journal, Aug. 19.

1889. LAWRENCE, G. N. An account of the Former Abundance of some species of Birds on New York Island, at the time of their Migration to the South. Abst. Proc. Linnæan Society [No. 1], for the official year 1888—89, pp. 6—8. (See also Auk, VI, 1889, pp. 201—204.)

Notes on 13 species, from 1820 to 1850.

1890. NELSON, J. Descriptive Catalogue of the Vertebrates of New Jersey. Geological Survey of New Jersey. Final Report of the State Geologist. Vol. II, Part II. Birds, pp. 518—636.

Based on Abbott's list of 1868 and containing numerous additional errors.

1892. AVERILL, C. K., JR. List of Birds found in the Vicinity of Bridgeport, Connecticut. Prepared for the Bridgeport Scientific Society. Bridgeport, Conn.: Buckingham & Brewer, Printers. 8vo., pp. 1—19.

A briefly annotated list of 246 species. (See review in Auk, X, 1893, p. 352.)

1892. CHAPMAN, F. M. [Birds of Central Park, New York City.] New York Evening Post, Supplement, June 18, 25, July 2, Oct. 15, Dec. 31.

Popular account of some species.

1892. HOWELL, A. H. Brief notes from Long Island. Auk, IX, pp. 306, 307.

Notes on 5 species.

1893. DUTCHER, W. Notes on some Rare Birds in the Collection of the Long Island Historical Society. Auk, X, pp. 267—277.

Notes on 44 species.

1893. EAMES, E. H. Notes from Connecticut. Auk, X, pp. 89, 90, 209.
Notes from Bridgeport on 11 species.

1893. FOSTER, L. S. The Winter Birds of the Vicinity of New York City. Abst. Proc. Linnæan Society, No. 5, pp. 1—3.
A synopsis mentioning 14 of a list of 127 species.

1893. HOWELL, A. H. On the Occurrence of three Rare Birds on Long Island, New York. Auk, X, 1893, pp. 90, 91.
Barn Owl, Orange-crowned Warbler and Bicknell's Thrush.

1894. CHAPMAN, F. M. The Nocturnal Migration of Birds. Popular Science Monthly, XLV, pp. 506—511.
Contains an account of observations made at the Statue of Liberty, Bedloe's Island.

1894. STONE, WITMER. The Birds of Eastern Pennsylvania and New Jersey, With Introductory Chapters on Geographical Distribution and Migration; prepared under the direction of the Delaware Valley Ornithological Club.
A complete and fully annotated list of 352 species. Contains also a Bibliography of the Birds of Pennsylvania and New Jersey.

1894. HOWELL, A. H. Notes on Some Long Island Birds. Auk, XI, pp. 82—84.
Notes on 5 species.

1895. CHAPMAN, FRANK M. Handbook of Birds of Eastern North America. New York, D. Appleton and Co.
Contains tables giving dates of migration at Englewood, N. J., by F. M. Chapman, and one giving dates at which birds begin to nest in the vicinity of New York City. Also notes under each species showing its status at Sing Sing, N. Y., and on Long Island, by A. K. Fisher and Wm. Dutcher, respectively, constituting complete lists for these localities.

1896. BRAISLIN, W. C. Notes on Long Island Birds. Auk, XIII, pp. 87, 88.
Notes on 5 species.

1899. BRAISLIN, W. C. Notes on Long Island Birds. Auk, XVI, pp. 190—193.
Notes on 10 species.

1900. BRAISLIN, W. C. Notes on Birds of Long Island. Auk, XVII, pp. 69—71.
Notes on 6 species.

1901. BABSON, WM. A. Birds of Princeton, New Jersey, and Vicinity. Bulletin of The Bird Club of Princeton University, Vol. I, September, 1901, No. 1. Published by the Club.
A fully annotated list of 231 species.

1902. BRAISLIN, W. C. Notes concerning certain Birds of Long Island. Auk, XIX, pp. 145—149.
Notes on 12 species.

1902. CHERRIE, GEO. K. Bird Notes from Long Island, New York. Auk, XIX, p. 210.

Notes on 4 species.

1902. STONE, WITMER. Report on the Spring Migration of 1902 in eastern Pennsylvania and New Jersey. Cassinia, 1902, pp. 32—48.

Contains notes on various species at Paterson, N. J. (J. H. Clark) and Plainfield, N. J. (W. De W. Miller).

1904. STONE, WITMER. Report on the Spring Migration of 1904 in eastern Pennsylvania and New Jersey. Cassinia, 1904, pp. 46—61.

Contains notes on occurrence of various species at Summit, N. J., by La Rue K. Holmes.

1904. CHAPMAN, FRANK M. Birds' Nests and Eggs, With an Annotated List of the Birds Known to Breed Within Fifty Miles of New York City. A Guide Leaflet to the Collection in the American Museum of Natural History. Guide Leaflet No. 14. Supplement to the American Museum Journal. Vol. IV, No. 2, April, 1904. New York: Published by the Museum. Illustrated.

Includes descriptions of nesting site, and number and color of eggs.

1904. BRAISLIN, W. C. Notes concerning certain Birds of Long Island, N. Y. Auk, XXI, pp. 287—289.

Notes on 9 species.

1905. BRAISLIN, W. C. Notes concerning certain Birds of Long Island, N. Y. Auk, XXI, pp. 167—169.

Notes on 15 species.

1905. STONE, WITMER. Report on the Spring Migration of 1905 in eastern Pennsylvania and New Jersey. Cassinia, 1905, pp. 53—67

Contains notes on occurrence of species at Summit, N. J., by La Rue K. Holmes.

1905. HANN, H. H. A Preliminary List of the Birds of Summit, New Jersey. The Wilson Bulletin, Vol. XVII, No. 4, December, pp. 117—122.

Records 149 species. Briefly annotated.

1905. HOLMES, LA RUE K. Summer Birds of Summit (Union County), New Jersey, and Vicinity. Wilson Bulletin, XVII, No. 1, March, pp. 8—12.

An annotated list of 89 species.

1905. HIX, GEO. E. A Year With the Birds in New York City. The Wilson Bulletin, Vol. XVII, No. 2, June, pp. 35—43.

Records 161 species. Annotated.

1906. BOWDISH, B. S. Some Breeding Warblers of Demarest, N. J. Auk, XXIII, pp. 16—19.

Notes on breeding of eleven species.

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